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ABSTRACT

A career planning workshop program was conducted for New York City twelfth-grade female students intending to enroll in community colleges. Its purpose was to assist them in the transition to college while motivating them to consider nontraditional courses of study. In an attempt to increase participants' interest in male-dominated career programs, improve decision-making capability, and actively involve them in career planning, the four-day workshop was planned to incorporate sessions wherein participants would interact with adults in a structured, organized, supportive environment that treated them as adults. Using written and oral exercises, lectures and discussions, and games and role playing, the eighty-four participants underwent a similar experience that, overall, was judged effective in facilitating self-understanding and appreciation of educational-vocational options--nontraditional ones in particular. College women--usually experienced counselors--led the small-group sessions (fifteen or fewer per group) which focused on self-understanding and mathematics (both student experiences and "math anxiety"), career planning, and setting goals. Large group sessions dealt with college and occupational requirements, panel discussions, gathering career information, and individual presentations by professional women and college students. Reaction to the program was strongly positive: Group leaders valued the experience, while student attenders received occupational information, learned new skills, and interacted with a large number of adults (including mathematicians and college students). Workshop organizers plan to conduct a comparative follow-up of attenders and non-attenders as a long-term study. (CP)

ED177370

# FROM SENIOR TO FRESHMAN:
## CAREER PATHS WORKSHOP
## FOR WOMEN STUDENTS

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in cooperation with the
Bureau of Grants Administration
The New York State Education Department
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# Foreword

The Bureau of Grants Administration has long sought to meet the postsecondary needs of students in occupational education and, in concert with IRDOE, explored ways and means of breaking traditional, stereotypical enrollment trends in these programs. With the objective of increasing the number of women entering non-traditional technological curriculums in community colleges IRDOE undertook a design study in January 1978. Materials development for "career path" workshops was included, forming the basis of a series of workshops to be implemented in the 1978-1979 school year.

This report deals with those workshops, and addresses salient activities incorporated to increase the representation of women in occupations in which they have been underrepresented historically. It is hoped, as well, that such activities will strengthen the programs by attracting talented women. Lastly, this project, through dissemination of this report, may provide a model for motivating and recruiting female students elsewhere in the State and nation.

Lee Cohen, Ph.D.
Professor, Director

# ACKNOWLEDGMENTS

Several organizations as well as individuals have contributed vitally to this project; their names are listed in Appendix C. The Bureau of Grants Administration (New York State Education Department) provided the principal backing through its grant. CUNY's Graduate School and University Center most cooperatively supplied all the physical facilities essential to our work. CUNY's Office of Admission Services offered many kinds of useful information, as did the New York City Board of Education's Division of High Schools (College and Scholarship Guidance Program) and College Bound Program. We also owe a great deal to the New York City public high school principals and college advisors, without whose support and assistance there would have been no field demonstration. There are too many principals and counselors to list individually, but the continued cooperation and interest of John Bowne, Benjamin N. Cardozo, and Francis Lewis High School deserve special mention.

We want to thank the administration of the CUNY colleges who graciously made available our group leaders: Borough of Manhattan Community College, Margaret Hayes and Joyce Brown; Bronx Community College, Evelyn Kish; College of Staten Island, Charlotte McPherson; Kingsborough Community College, Uda Bradford; LaGuardia Community College, Aida Ceara and Arthurine De Sola; New York City Community College, Francine Campone and Ebony Kirkland; and Queensborough Community College, Particia Evanoski and Lore Jarmul. Medgar Evers College and Hostos Community College were also generous in their offers of assistance.

We are particularly grateful to Ms. Lore Jarmul, who unfailingly eased our job, both editorially in preparation for the Workshop and actively during its conduct; Ms. Jarmul was program moderator as well as leader of one of the small groups. We wish to thank President Ursula Schwerin for the time she took during her first months as President of New York City Community College to join us as keynote speaker at the Workshop's graduation ceremony; all the participants benefited from the inspiration she projects--by her career path and by her interest in things great and small.

In addition to these people, we would like to record our appreciation of the working women, all of whom took the time to participate; Dr. Stanley Kogelman, Director of Mind Over Math, and the other mathematicians who (almost) convinced us completely that there is no magic key for doing math; and the graduating community college seniors who can only be described as delightful contributors for one too-brief afternoon.

Dr. Lee Cohen, Director of IRDOE, and Ms. Melanie Bentley, Administrative Assistant, continued to smooth our way. But for the careful, intelligent, and critical assistance of Ms. Arlene Vogl, Ms. Rachel Helm, Mr. Fred Wheeler, Ms. Carolyn Weber, and Dr. Rita Senf, neither the project nor this document could have been completed. In addition to keeping our accounts, Ms. Weber typed this report and, if typing can be creative, typed it creatively. Without Ms. Vogl's help at every stage from inception to delivery of the final manuscript to the printer, we would have lost our way--not meeting deadlines nor making progress as rapidly. Ms. Vogl critically proofed all materials, assisting Dr. Senf to edit this report. Dr. Senf wielded a most skillful scalpel on it, though we were stubborn enough to resist some of her surgery. They are not to be held responsible for our opinions,

with some of which we know they disagree, or for the errors that remain. To the extent that the report is free from error and ambiguity, Dr. Senf deserves appreciable credit.

Many readers who are familiar with some of the authors' recent work cannot fail to notice that Ms. Linda Gross' name does not appear on the cover of this report. Ms. Gross is in a sense an author of the program if not the document, and her generous contribution to its success is gratefully acknowledged. For the last several years, during which feelings of friendship and respect deepened, Linda Gross was an able, articulate colleague whose advice often meant substantial improvements in the work we produced. We welcome this opportunity to publicly wish her well in her new position at another unit of the University.

Finally: we find it impossible to thank the students for participating. Rather, we would like to acknowledge their prior accomplishments and their future undertakings. If thanks are due, we would like to thank them for what they taught us and for relieving us of many of the stereotypes about seniors that burdened us as we began, but which are no longer encumbrances.

Barbara R. Heller,
Project Director

Victor D'Lugin,
Project Associate

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# from SENIOR to FRESHMAN: CAREER PATHS WORKSHOP FOR WOMEN STUDENTS

## INTRODUCTION

Although by the early teens almost every person has been asked, and answered the question, "What do you want to be when you grow up?", it is commonly accepted that the response is not to be taken seriously. It generally reflects little understanding of self-potential or of the wide range of possibilities that exist in the world. Furthermore, as most of us know from our own personal recollections, the answer is rarely related to subsequent career patterns. On a more formal level, study after study of vocational maturity reveals that, among secondary school students, the answer to "what I want to be..." changes significantly between 9th and 12th grades, is not necessarily in keeping with ability, and does not reflect precise or comprehensive information about occupations.

Yet as early as the beginning of high school, students begin to make pre-vocational decisions, the outcomes of which shape their career future. Thus, for example, electing to take or not to take a second year of algebra or a science course, or deciding to hang around rather than work after school makes certain career paths easier to follow and effectively closes other options. It is our contention that at no other period in one's development are the effects of unplanned and unintentional decision-making more concentrated than in the latter years of high school.

Regardless of whether or not students are as adequately prepared as possible for the transition from high school to work or to college, this period is especially difficult for women. Varying expectations and differences in socialization that characterize the upbringing of girls and boys, become more acutely manifest at this time. While the future plans of high school students tend to be unreliable, male students are generally socialized to plan within the context of a permanent work role--that is, being economically responsible for self and family. Young women's career plans tend to be, for a variety of reasons, less responsive to economic pressures--despite the fact that most women work for economic reasons.

As a result of different role definitions, as compared with men, women high school students not only have more restricted career aspirations but are also expected to integrate the ambiguous and often contradictory demands society places on their goals. For females, it is often necessary to satisfy the traditional female role--to marry and have children--and/or satisfy the demand to perform well in school, and perhaps later at work. Thus during the high school years, the time for sharpening career skills and plans, male students are deciding on "which college" and "which career" while women students are deciding on "if college" and "if career."

Even those women who go to college (and the number of women entering college has increased dramatically in the last decades) tend not to make optimal use of the opportunity. To a great extent, their career plans represent a compromise: preparation for work which is an extension of the traditional female role--the helping occupations. Female students continue to enroll in programs that lead to sex-typed occupations. Without significant forms of intervention, including access to information and role models, women resolve the conflicting demands by merging them; they continue to follow traditional paths rather than defining a personal path that accords with their own needs, abilities, and interests.

With the aim of breaking into this pattern, in the Spring of 1979 the Institute for Research and Development in Occupational Education (IRDOE) conducted the Career Paths Workshop program that incorporated many elements identified in the literature as significant intervention strategies--providing students with better, more complete information about the options that are available; role models; and supplementary instruction and counseling. IRDOE's interest in career planning and decision-making among young students goes back several years to a pilot demonstration of a computer-based guidance program.[1] Ancillary to the major purpose of that project, we confirmed others' findings that 11th and 12th graders knew very little about the career they thought they were most interested in and were minimally informed about other occupations. In general, they also were not knowledgeable about colleges (and other forms of training), including those to which they were applying. Although New York City public high schools provide guidance and college advising services to students, few schools can offer systematic career counseling. Moreover, the quality of the services that exist for the general population are, as is usual, dictated more by school system's finances than by student needs or staff concerns.

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[1] B.R. Heller and L. Chitayat, Computer-Assisted Guidance in New York City High Schools: A Demonstration of Feasibility and Impact on Students. CASE 41-76, November 1976. ED No. 140 150.

What we corroborated during the course of the computer demonstration program was that school guidance functions at the secondary level in New York City are divided among several staff memebers: licensed guidance counselors, teachers, and other specialists. Together they are responsible for a large variety of services, including personal counseling, orientation, supporting other school staff, consulting with parents, acting as community liaison, interpreting test scores, maintaining records, and providing educational and vocational guidance. It has been well documented that their tasks are multiple and complex, and considering the size of the City's school population, boundless. As an example, in 1971-72 the Citywide ratio of guidance counselors to students was 1:222 in the academic-comprehensive schools and 1:245 in the vocational high schools.[1]

An estimated 86 percent of academic-comprehensive and 65 percent of vocational high school graduating seniors plan on some form of postsecondary training.[2] In numbers, more than 245,000 public high school graduates a year apply to colleges and other postsecondary training institutions. Most high school graduating seniors apply to the City University of New York (CUNY) colleges, and thousands apply to other public and private ones as well. While we do not know how many schools do so, it is a practice in at least some New York City public high schools to have all seniors submit an application to CUNY. Designed to handle thousands of applicants, CUNY's centralized admissions application procedure requires an applicant to list (in order of preference) six colleges, each paired with a specific program of study. Although help is provided to high school staff and students, there is often insufficient time to give individual graduates the desired level of attention that would assure their making the best choice of college, career, and curriculum--whether or not the choice involves CUNY. As a result of large numbers of students, relatively few staff to counsel them, complex procedures, and very many available options, it is almost impossible for either secondary or postsecondary institutions to adequately inform students or prepare individuals with the knowledge and skills they need for the high school-to-college or to-work transition. Thus, one major intent of the Career Paths Workshop program was to make the transition period easier and more meaningful for students and, to the extent possible, provide educational institutions with a scenario for the future.

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[1] Board of Education of the City of New York, Office of Planning-Programming-Budgeting. 1971-72 School Profiles: Academic Comprehensive and Vocational High Schools.

[2] Ibid.

## BACKGROUND

### Planning The Program

For the first eight months of 1978, IRDOE, in collaboration with staff from local high schools and a CUNY community college, drafted a design for a workshop program for women high school students who intend to continue their education. This planning grant project, supported by the New York State Education Department,[1] was predicated on the assumption that the after-graduation plans of female students, similar to those of their male counterparts, are based on limited knowledge and exposure to careers. In addition, women students also suffer the effects of societally defined occupational sex stereotypes as well as societally imposed role expectations that manifest themselves in various ways--including scholastic ones.

In order to reduce occupational stereotyping by sex, we believe it is important to increase the proportion of women enrolling in fields of study that have been, by tradition, dominated by males. Studies of college graduates indicate that approximately 7 out of 10 work in jobs related to their major, both immediately after graduation and five years later.[2] Such findings stress the importance the authors attach to students' initial choice of a field of study--a decision required by CUNY in advance of placing an applicant within the University system.

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[1] Grants Administration Unit, VEA #78-3D-807.

[2] B.R. Heller, F. Wheeler, L. Gross. 1973 Career Graduates: A Profile of CUNY Community College Students. CASE 26-78, September 1978. ED No. 161 470.

Although we had had some prior experience working with young college women with aspirations for professional level careers in the sciences,[1] in the present instance we were particularly interested in those occupations requiring no more than an associate (two-year college) degree. We hypothesized that women entering CUNY's community college career programs are less likely--for a variety of reasons--to have received sufficient amounts of individual guidance at shcool, and hence less likely to have been exposed to a range of options. We also assumed that very many of these young women are first generation college-goers, and therefore lack the benefit of the related experience of family and friends. Furthermore, still based on assumptions about this population, these young students probably achieved less well academically in high school than did classmates who aspired to and were accepted into four-year college programs; come from somewhat lower socioeconomic backgrounds; and in many ways are more conservative in their perceptions of women's roles. In combination, we believed that these factors help to explain such facts as these: close to half the women students in CUNY's community colleges are enrolled in nursing curricula, 13 percent more in secretarial studies, and an additional 10 percent in education/child care. (The only significant exception to this pattern of traditionality is the proportion of women enrolled in accounting--approximately 14 percent.)[2]

Other related reasons have been advanced to explain the relatively small percentage of females in the scientific and engineering technologies, in some sciences, and in certain business and communications occupations. These include the absence of role models and the prevailing belief that these occupations are too logical or difficult for women. Interestingly, logic and difficulty seem to mean mathematical; and indeed, beginning in mid-high school, females take progressively fewer mathematics courses than do male students. This is the "math filter" phenomenon, one result of which is that by the time women enroll in college they are more poorly prepared in those background courses needed to enter and compete in technological and scientific fields of study.

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[1] B.R. Heller, V. D'Lugin, L. Gross. IT'S MY LIFE! Science Career Workshop. CASE 33-78, December 1978.

[2] Op. cit. 1973 Career Graduates.

The focus of the planning grant referred to above was to enable IRDOE to design a program to address these issues. From the outset, we worked with other professionals, a college advisor, a guidance counselor, and the physical science department chairperson at three different New York City public high schools, as well as with two mathematicians and the Assistant to the Dean of Student Services at Queensborough, a CUNY community college. We also had the services or an expert in dealing with the problems and anxieties attendant to the study of math.[1] The combined input of these people took into account the different perspectives of the major types of educational institutions and agencies concerned with improving the career decision-making process and increasing the number of women entering nontraditional occupations.

The efforts of this group produced more than one outcome. First, we designed a complete two-pronged program that could immediately be tried in a field situation. The first prong consisted of a series of 11 after-school workshops to be conducted at the community college. Participants would be 11th and 12th grade females, and college counselors would lead the sessions. All activities were planned to provide participants with occupational information and an opportunity to explore aspects of the self and the external world crucial to informed career choice.

The second prong incorporated math- and science-related activities in a more flexible, individualized format where instruction varied in length, in formality (course-like), in where it would take place (high school or college campus), and in who would conduct it (school faculty, peer tutors, and so on.) These mini-courses would include individual or small-group tutoring devoted to specific academic subjects (e.g., algebra, pre-calculus), to math and science in everyday life,and to preparation for the S.A.T.'s.

In addition to addressing issues of format and content, the planning group designed an application form, established selection criteria, and drafted evaluation instruments to assess participants' initial attitudes as well as program impact. Materials for students (including exercises and readings) and guides for session leaders were also written.

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[1] B.R. Heller, V. D'Lugin, L. Gross. A Planning Program to Develop Career Path Workshops for Women Students. CASE 20-78, August 1978. ED No. 161 511.

Another major outcome of the planning grant was a realization that, in large part because of the complexity of rules and regulations, the community college institution would be the best agency from which to draw group leaders. Not only do community colleges have relatively larger numbers of counselors than do the high schools, but they seem to be in sympathy with the problems students face and appear willing to assume responsibility for the transitional period. Furthermore, because the colleges have recently begun to initiate outreach programs to attract students, it has become the responsibility of the counseling departments to assist students who have difficulty in making choices or who have made inappropriate ones.

A related outcome was that high schools and colleges proved willing to work closely in order to ease the transfer of students from one to another educational level. In addition, secondary schools are willing to contribute time, some personnel, and space and other resources to furthering educational and vocational guidance.

Also of interest, the 8-month grant allowed us to assess students' needs. As a result of our observations it was clear that there was a sufficiently large number of juniors and seniors interested in special after-school programs for women. They listed topics they would like to discuss in such a program--a range that extended well beyond what we anticipated--as well as indicating that they perceived math and science as problem areas.

As indicated in the planning proposal final report,[1] we came to believe that there were program elements that transcend program content. Namely, to the extent practicable it was important to: regard the target population as an adult special needs group; recognize their basic conservatism concerning their future work plans; appreciate their naivete with respect to potential sources of conflict; and provide continuous, positive, attractive support and reinforcement.

Toward the end of the planning phase, the New York State Department of Education asked us to revise the workshop plan so that it would better accord with the intent of the most recent amendments to the Vocational Education Act and the State's priorities. The two major modifications were: (1) to limit participants to female high school seniors who intend to enroll in a career program at a two-year college, and (2) to condense the 11 session series and the supplementary instructional component into a four-day program. This report describes the field test of that revised program.

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[1] Ibid.

## from SENIOR to FRESHMAN...

During the 1978-79 school year, IRDOE implemented the modified version of the Career Paths Workshop program.[1] The demonstration incorporated all the elements we identified as essential to program success, many techniques described as effective in the literature, much of the material developed in the planning period, and covered most topics in which students expressed interest. As its long-range goal, the 1978-79 Career Paths Workshop program sought to encourage interest in nontraditional vocational curricula offered in two-year college programs and to encourage female students to enroll in these fields of study. The basic philosophy of this program is that nontraditional occupations represent a new range of choices for women.

As more immediate objectives, we intended that a combination of techniques and strategies delivered by a variety of people would increase the quantity and quality of participants' occupational information; improve their perception of the desirability of nontraditional vocations; and provide skills by which they could make more informed choices based on more complete understanding of self, of the multiple roles of women, and of the real-world options that exist.

The four-day Workshop program was for female students who would graduate from local public and private high schools in June 1979, and who were likely to enroll in a CUNY community college career curriculum, starting in September 1979. The theme of the program, as expressed by its name--from SENIOR to FRESHMAN: Career Paths Workshop for Women Students--was to assist in the transition between the end of high school and the start of the first year of college. The career emphasis was four-fold: namely, that (1) a person's career--the work she does--occupies a large amount of her time and thus is a crucial factor to consider in life plans; (2) career choice is a continual process that develops and changes with maturity and with new opportunities; (3) people can extend their own opportunities through learning to understand their own needs, interests, and skills and abilities, and how to assess the available alternatives; and (4) all people can and should make their own decisions, and women in particular need to realize that they have the right to shape their lives to their own satisfaction.

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[1] VEA-79-38-808 DPS, New York State Education Department, Bureau of Grants Administration.

To accomplish these objectives, we organized large group and small group sessions; relied on a variety of women--counselors, working women, mathematicians, female college students--to lead groups; made use of written materials, exercises, and discussion techniques; and built in incentives. Although the Workshop was highly structured (in the sense that scripts were written and activities timed), plans included ways of attending to the specific needs of individual participants. Regular feedback from presenters and participants alike, coupled with systematic observation and evaluation, allowed us to monitor the program as it unfolded and its impact on those who attended.

The four-day program was held on March 14 and 15 and April 16 and 17, 1979 at the City University of New York's Graduate School and University Center. A total of 84 different participants attended at least one of the four days; excluding project staff and other IRDOE personnel, 39 adult women presenters were also involved.

To conduct a workshop series that brings together many people into a central location, to feed them lunch and snacks, to meet multiple objectives that honor the requirements of the Vocational Education Act, and respond to individual preferences requires a great amount of coordination. During the months prior to the first session in March, and in the month intervening between the second and third sessions, project staff devoted much time to these preparations. The next section of this report discusses the planning and preparation activities. It is followed by a description of the characteristics of the target population and an account of what occurred during the four days. The level of detail may, indeed, surpass the stamina of many readers: it was written in anticipation that other people who are willing to risk working with a largely ignored population of young women would benefit from what we learned.

What we have not included in this document are complete sets of the materials--readings and exercises for students and scripts used by the presenters. These written and video materials are being revised and packaged so that they can be available in a more useful form that incorporates the results of the demonstration.

## WORK PLANNING AND PREPARATION

Starting early in the academic year, we began to select student participants, recruit and train group leaders, identify guest presenters, and design the written materials. All these preparatory activities proceeded simultaneously.

The first decision, and one of the two important problems we faced initially, was when to hold the Workshop. As originally intended, it would consist of three consecutive full-day sessions (preferably scheduled during the schools' Spring recess), followed by a one-day session a month later. In 1979, it proved impossible to schedule three days during the Spring recess without interfering with a major religious observance. After discussion with high school principals and counselors, and with the approval of the funding agency, we rearranged the program, with two consecutive sessions to be held during March (the 14th and 15th, school days), and two days in April (the 16th and 17th, which fell during the Spring vacation). All student participants were expected to attend all four day-long sessions.

The second problem was where to have the Workshop: to announce the program and recruit participants, we needed to make these arrangements as early as possible. We wanted to conduct the Workshop at the CUNY Graduate School and University Center for several reasons, including its accessibility, diverse facilities, ambiance, food, and audio-visual services. We therefore had to involve the University's administrative staff closely in order to obtain a commitment for space six months prior to its actual use. With the early resolution of these problems, full-time effort was then devoted to more substantive issues.

### Student Recruitment

The population we wanted to attract was female high school seniors, graduating in June 1979, who were likely to attend a community college in the fall. In addition to representing the ethnic and racial diversity of female students in the New York City schools, we wanted the target group of 100 to include women who were either uncertain about their future career plans or uncommitted to a traditional goal. In order to reach appropriate students, while at the same time assuring that the program would not be oversubscribed (forcing us to turn down too many applicants), we developed a recruitment strategy that would reach out to a large pool of female seniors in different schools and permit selective recruitment.

In early November we wrote to the principals of the 111 New York City co-ed public high schools (including 11 alternate schools) outlining the objectives of the program and describing the target population. We asked the principals to encourage the college advisor(s) to assist in the recruitment process and to authorize the release from school of any student selected to participate. Overall reaction on the part of the administrators was positive, and only one principal declined to participate because she felt that "every school day of the senior year was precious."

Two weeks after mailing the principal's letter, we wrote to each school's college advisor(s). This letter described the program and the target group; it asked the advisors to publicize the program, identify 2-3 students they felt would benefit, and assist these students to complete the application, which would be distributed to the schools early in December. Since most high schools publish a bulletin for seniors highlighting such things as college application deadlines and college admission testing dates, we drafted a notice about the "from SENIOR to FRESHMAN..." Workshop program for inclusion. We also sent the advisors a sample article for suggested insertion in the school newspaper.[1]

In addition to contacting all high schools, we recruited intensively in selected ones--those which had previously sent large numbers of students to two-year colleges. As part of this effort, we met with the Board of Education's College Discovery and College Bound Coordinators, who suggested a special mailing to their high school counselors. We also worked with CUNY's Office of Admission Services, which provided us with a list of high schools, ranked according to the number of female students allocated to community college career programs. This ordering helped determine where to direct our effort.

A great amount of care went into the design of the Workshop application form to insure that it provided sufficient information about the applicant (so that IRDOE staff could select appropriate participants) and sufficient information about the program to attract the student. Furthermore, to keep costs to a minimum, the application had to also serve as a poster--excite notice and stimulate interest in the Workshop. The final design, printed on violet paper with purple and black ink, was a multi-purpose form; it described the program's content; could be displayed on the bulletin board; included a questionnaire, which (when the student completed) she could fold, seal, affix a postage stamp, and mail directly back to IRDOE.[1] The instructions for students were purposeful: our intent was to make submitting an application a bit of a bother so that those not genuinely interested could not easily apply and, conversely, to increase the probability that those who did apply had some commitment.

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[1] Copies of sample articles and notices are appended. (See Appendix A.)

By the first week of December when the college advisors received blank applications, they were already knowledgeable about the program, its goals, and the target population. We asked them to have the applications distributed either before or immediately following the winter recess, whichever time they judged would have greater student appeal. It would appear, based on the rate of receipt of completed applications, that in the majority of schools they were distributed to students after the winter recess; however, a substantial minority were distributed prior to the holiday. Various methods were used to distribute applications: in most schools, the advisor gave them to senior homeroom teachers to give to appropriate students; other advisors went to the homeroom classes themselves, explained the program, and solicited applicants. In two high schools, the college advisors reported that they went through all seniors' records, identified likely candidates, and delivered applications to each of them personally. These two schools had the greatest number of applicants (12 each).

Requests for application forms and information about the project came from other public school personnel--e.g., teachers and coordinators of special programs, and from private schools and community groups. Many of these requests were in response to articles that appeared in the Graduate School and University Center Newsreport and the Office of Admission Services' Newsletter. (See Appendix A.)

The recruitment process was effective to the extent that we received 321 completed applications from students in 62 different academic, comprehensive, vocational, and alternative high schools in all five boroughs.

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[1] For a copy of the application form, see Appendix B.

The first application was dated December 13th, 1978 and the last April 12, 1979. (One was received on October 9, 1979.)

Procedurally, immediately on receipt of a completed application, we sent a letter thanking the candidate for applying and explaining that we would let her know if she was accepted. Although we intended this primarily as a courtesy to students and as a way of keeping in touch with them in the interim, there was an important bonus--namely, we were able to identify (and eventually contact) students who did not provide an adequate address; very many students omitted their zip code or borough, or failed to indicate that they lived with relatives with different surnames. Because of the frequency with which this occurred, we investigated it and came to realize that, in general, city high school students receive very little mail (elementary and secondary schools have the student take home all official notices) and, therefore, have few opportunities to provide an adequate mailing address.[1]

After reviewing the applications (see below for a description of the applicants) we selected 128 students to participate in the Workshop; extra students were invited to insure an adequate number to make up for those who would drop out. Rejected and accepted students alike received a letter from us by mid-January, as did the college advisors in the schools from which applications were received. From most high schools we accepted 2 to 3 students; in 17, however, we invited more than 3 and, from several schools, as many as 9 girls.

Our letter of acceptance asked students to meet with their college advisor (we supplied each student with that person's name), and to co-sign with their parent or guardian a parental approval form giving permission for their absence from school on March 14 and 15. In addition, since we were planning to videotape most of the program, student participants (as well as all adult participants) and their parent/guardian had to consent to this in writing.

We sent the college advisor(s) the names of the students we had accepted and not accepted, requesting that they help students arrange to be excused from classes on the two days in March. In those schools where we had invited more than 3 students, we spoke with the advisor(s) and/or principal to assure that all those invited to the Workshop would be permitted to attend. Most counselors were delighted that such a large contingent of students were chosen and all facilitated their release from school.

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[1] As an interesting sidelight, most of the measures of adult functional literacy include an item related to addressing mail; as on other items, several million Americans cannot address an envelope correctly. See B.R. Heller, New York State Adult Functional Literacy Models Project. August 1976, ERIC Document No. ED 145 100.

Seven days before the first Workshop session we sent a letter to each participant reminding her that she was expected, and giving her detailed directions about time, location, and travel. As anticipated, a sizable number of women (one-third of those invited) did not attend.

## Student Selection

The applications were screened according to the criteria we established. In addition to being a female graduating senior, we wanted participants who:

- would most likely attend a two-year college; and
- had vaguely defined, nontraditional career goals.

Each of these principal criteria was expanded--redefined--and measured. In addition to these considerations, preference would be given to applicants who were ethnically and racially diverse; who reported difficulty or problems associated with mathematics; and who, to the extent possible, came from different high schools and were interested in attending different colleges.

A two-person team consisting of the project director and Workshop moderator (a staff member at Queensborough Community College who had worked closely with IRDOE staff on the previous year's planning grant) reviewed the applications; the final selection of the 128 participants reflects their recommendations. In the first round we eliminated 23 people: 1 male, 20 juniors, 1 sophomore, and 1 first-year high school student. The second round focused on the first criterion: would the candidate attend a community college? In attempting to determine whether the applicant would enroll in a two-year college career program, we examined three items on the application: which colleges she said she wanted to attend; what was the highest level of education she sought; and what was her (self-reported) high school average.

College choice. Applicants were asked to record their first, second, and third choices of colleges or schools they would like to attend after high school graduation. Table 1 analyzes these choices according to the type of schools chosen. For each student we looked at all three responses and tallied them. If a student chose three CUNY community colleges, that would appear as one entry in Table 1; a student who said she wanted to attend one CUNY community college, one CUNY four-year college, and one private college would have three entries, one under each of the categories.[1] The columns headed "All Applicants" in Table 1 let us examine the extent to which the total group of 321 wanted to attend a community college. That is, of all the choices made by all applicants, how many involved a (any) CUNY community college, or a private four-year college, and so on. Another

TABLE 1

Different School Categories Among Applicants' Choices: Overall Analysis of All Three Choices by Students Accepted and Not Accepted (Rejected)

| STUDENTS WITH AT LEAST ONE CHOICE IN THE FOLLOWING SCHOOL CATEGORY: | All Applicants (N = 321) | | Rejected Applicants (N = 193) | | Accepted Applicants (N = 128) | | Attenders (N = 80) | | Non-Attenders (N = 48) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| Community Colleges, Total | | 69.8 | | 49.2 | | 100.7 | | 102.5 | | 97.9 |
| CUNY | 206 | 64.2 | 80 | 41.4 | 126 | 98.4 | 80 | 100.0 | 46 | 95.8 |
| SUNY | 18 | 5.6 | 15 | 7.8 | 3 | 2.3 | 2 | 2.5 | 1 | 2.1 |
| Four Year Colleges, Total | | 97.8 | | 121.7 | | 61.6 | | 58.8 | | 67.7 |
| CUNY | 180 | 56.1 | 118 | 61.1 | 62 | 48.4 | 36 | 45.0 | 26 | 54.2 |
| SUNY | 27 | 8.4 | 24 | 12.4 | 3 | 2.3 | 2 | 2.5 | 1 | 2.1 |
| Private | 107 | 33.3 | 93 | 48.2 | 14 | 10.9 | 9 | 11.3 | 5 | 10.4 |
| Trade Schools | 5 | 1.6 | 3 | 1.6 | 2 | 1.6 | 2 | 2.5 | 0 | -- |
| No Choice Made | 5 | 1.6 | 5 | 2.6 | 0 | -- | 0 | -- | 0 | -- |

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[1] We also analyzed their first, second, and third choices separately. These analyses support those described in the text. Practically every one (98%) stated a first choice, but 8 percent stated no second choice, and 23 percent listed no third choice.

important comparison can be made: are there differences (as we intended) between those accepted and not accepted (i.e., rejected) for the Workshop?

One overall result that stands out immediately is that, considering all three choices, there were very few choices of trade schools or of SUNY colleges, whether two-year or four-year. Thus these applicants very much prefer CUNY over SUNY colleges, and have little interest in trade schools. They did, however, show some interest in attending a private four-year college.

Were the accepted applicants different in their preferences from those not accepted? These differences are striking: of the 128 accepted applicants, 98 percent expressed a preference (somewhere among their three choices) for a CUNY community college, as compared with 41 percent of the 193 students who were not accepted for the Workshop program. Conversely, the rejected applicants tended more often to list four-year colleges--CUNY, SUNY, and private--than did those accepted (48% vs. 11%). These differences accord with the primary selection criterion.

The data in Table 1 handles all three choices at once: however, not all the accepted applicants indicated a (CUNY) community college as their first choice. Indeed, we selected some applicants who listed a community college as a third choice, and a few who did not indicate a community college at all. The reason for this is that CUNY allocates students to two- or four-year colleges on the basis not only of the college they would prefer, but also considers such factors as curriculum, space, and high school grades. Thus, other things being equal, we accepted candidates who would probably be allocated to a community college based on grades.

Educational Aspirations. Although we took high school averages into account in the screening process, the reported grades were not systematically examined; they included "estimates," high hopes, and A's, B's, and F's that we could not convert to numerical scores. Instead, we substituted level of education--the highest amount of schooling applicants said they intended to attain. The authors' experience suggests that this is frequently a more valid indicator of eventual achievement than grades or, for that matter, college preference.

Overall interest in continued education was high. As can be seen in Table 2 (on the following page), only 2 applicants said they would complete

## TABLE 2

Educational Aspirations: Highest Degree Desired by All Applicants, and by Students Accepted and Not Accepted for the Workshop

| Amount of Education Desired[a] | All Applicants (N = 321) | | Rejected Applicants (N = 193) | | Accepted Applicants (N = 128) | | Attenders (N = 80) | | Non-Attenders (N = 48) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| High School Diploma | 2 | 0.6 | 2 | 1.0 | 0 | -- | 0 | -- | 0 | -- |
| Some College, no degree | 4 | 1.2 | 2 | 1.0 | 2 | 1.6 | 1 | 1.2 | 1 | 2.1 |
| Associate Degree | 90 | 28.1 | 33 | 17.1 | 57 | 44.5 | 31 | 38.8 | 26 | 54.2 |
| Baccalaureate Degree | 221 | 68.9 | 155 | 80.3 | 66 | 51.6 | 45 | 56.3 | 21 | 43.7 |
| NR | 4 | 1.2 | 1 | 0.6 | 3 | 2.3 | 3 | 3.7 | 0 | -- |

[a] Other options, e.g., trade school certificate, master's degree, were not listed in the application questionnaire.

schooling with a high school diploma and only 4 with some college but no degree. Nearly 7 out of 10 respondents (69%) felt they would attain a baccalaureate degree,[1] and 28 percent of the total group sought a two-year college degree. Approximately half the students accepted, as compared with 80 percent of those rejected, wanted a baccalaureate degree. Conversely, a significantly greater proportion of the accepted than of the rejected students indicated that the two-year degree was the highest they wished to acquire (45% vs. 17%). To a large extent, level of degree sought is in accord with students' preferences for attending two-year or four-year colleges, as reported in Table 1. The large proportion of both groups, however, who aspired to a baccalaureate degree suggests that many individuals who were considering a two-year college were also considering additional training at some future time.

Career choice. Another estimate of the extensiveness of educational plans as well as an indicator of career interests--our second major criterion for selecting participants--is career choice. Table 3 (on the following page) summarizes the first choice (most preferred) job or career applicants would like to have when they complete all schooling.

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[1] No more advanced option was included on the questionnaire.

TABLE 3

First-Choice Career or Job of All Applicants, and of Those Accepted and Not Accepted for the Workshop

(Figures in Percentages)

| CAREER CATEGORY | All Applicants (N = 313)[a] | Rejected Applicants (N = 189)[a] | Accepted Applicants (N = 124)[a] | Attenders N = 78 | Non-Attenders N = 46 |
|---|---|---|---|---|---|
| Health | 23.3 | 23.8 | 22.6 | 25.6 | 17.4 |
| Business | 16.3 | 12.2 | 22.6 | 16.7 | 32.6 |
| Secretarial Science | 15.6 | 12.2 | 21.0 | 19.2 | 23.9 |
| Social Service | 7.7 | 10.1 | 4.0 | 6.4 | 0 |
| Computer Science | 7.7 | 5.3 | 11.4 | 14.1 | 6.5 |
| Education | 4.8 | 5.8 | 3.2 | 5.1 | 0 |
| Communications | 4.5 | 6.3 | 1.6 | 1.3 | 2.2 |
| Merchandising | 4.1 | 6.3 | 0.8 | 0 | 2.2 |
| Fine & Applied Arts | 3.5 | 3.7 | 3.2 | 2.6 | 4.3 |
| Social Science | 3.2 | 2.7 | 4.0 | 1.3 | 8.7 |
| Transportation | 2.9 | 2.7 | 3.2 | 3.8 | 2.2 |
| Law | 2.6 | 4.2 | -- | 0 | 0 |
| Acting, Performing Arts | 1.6 | 2.1 | 0.8 | 1.3 | 0 |
| Engineering | 1.3 | 1.6 | 0.8 | 1.3 | 0 |
| L.A., General | 0.6 | 1.0 | -- | 0 | 0 |
| Beautician | 0.3 | -- | 0.8 | 1.3 | 0 |
| TOTAL | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

[a] A total of 8 applicants did not answer this question--4 accepted and 4 rejected applicants.

They listed a fairly wide range of careers which we categorized in order to examine them more easily. It is apparent that the range is somewhat more restricted for those we accepted for the Workshop than for those not accepted; that is, two-thirds of the accepted group wanted careers classified as either health, business, or secretarial science. One explanation is that this group may be less knowledgeable about or were less exposed to occupational information. Another related point of interest, and one not observable in the table is the differences in level of career, as for example in the health category. Of the 28 accepted applicants who listed a career in health, slightly more than 60 percent wanted to be nurses, in contrast to 40 percent of the comparably classified rejected girls; and while no one in the accepted group wanted a career as a physician, several in the rejected group listed this as a choice--as well as such occupations as physiologist and physical therapist.

Some other differences exist as well. As an illustration, although a larger proportion of accepted than rejected applicants expressed interest in a business-related career (23% vs. 12%), the titles listed by those accepted were less well-defined. Similarly, among those accepted, 64 percent of the computer science career category is accounted for by data processing and keypunching occupations, as contrasted with 30 percent of the rejected group interested in computer careers.

All applicants were asked how certain they felt about attaining their first-choice career. There was virtually no difference between the accepted and rejected groups; 72 percent of each indicated that it was "very likely" they would have the career they wanted. Most others (about 25% of each group) felt it was "somewhat likely"; no respondent estimated it as highly unlikely.[1]

These data are not surprising: we were interested in, and screened applicants on the basis of, vague career goals or ones that required no more than two years of postsecondary training. As we intended, applicants who were accepted aimed at occupations for which two years of college training were appropriate. Nor is it surprising that for a sizable proportion of respondents career choice and level of education are not well-matched: the fact that most young students cannot specify the most general qualifications for occupations has been documented repeatedly. Indeed, in the present instance we believe there was a better match than is usual, but this may be a result of the limited range of occupations and the fact that these tended to be fairly traditional.

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[1] There were important differences within the accepted group; accepted girls who attended the Workshop were somewhat less certain about accomplishing their goal than the group of girls who were invited but who did not show up. We will discuss these and other differences in a later section of the report.

It is apparent that the applicants tended not to be interested in nontraditional occupations: even when choosing the traditionally male-dominated fields of medicine, business, transportation, computer science, and communications, most applicants seemed drawn to sub-specialties which are more heavily "female"--bookkeeping, jobs with airlines, etc. Nor were we terribly effective in reaching an undecided population; almost every applicant responded with three career choices, the most preferred one having a high likelihood of attainability. Furthermore, the occupations they wanted seemed to accord with the applicants' ability level and educational plans; apparently, our candidates tended to be realistic, if somewhat conservative.

It is important to raise the question (without having an answer to it) of why this, and similar programs, fail to attract large numbers of girls and women with potential interest in nontraditional occupations. Moreover, for this program in particular we are concerned about the fact that so many of the applicants we reached appeared quite certain about their career goal and about being able to attain it. Possible factors to be considered in the future relate to the age groups that are generally the targets of these types of programs and specific psychosocial characteristics of the nontraditional woman.

In terms of the age group factor, usually programs that want to increase the representation of women in male-dominated careers are directed at the high achieving high school graduate-entering college student or at the mature adult seeking a way to return to (or enter) the labor force. Career decisions that involve unusual goals may occur at different ages or points in the life cycle. A case study of, for example, women in nontraditional careers, or a critical analysis of age differences between males and females in career maturity, decision-making, etc., may contribute to an understanding of when and how nontraditional careers develop--especially when contrasted with the development of traditional ones.

Another area of inquiry is whether women who will enter nontraditional careers identify more with males than they do with traditional women and are thus less likely to be attracted to an all female program. More information about these women would increase the understanding of how to reach young girls with similar characteristics.

As an aside, it is the authors' opinion (backed by that of the other adults who worked intensively with the girls during the four-day Workshop) that participants were not as committed to their first-choice career as it appears from analyzing questionnaire data. What we were picking up was, in part, students' "set" to answer questions and their internalized belief that by the time people graduate from high school they should have a definite idea of how they will spend the rest of their working lives.

In summary, with respect to the major criteria used to screen candidates, we were more successful in attracting students who would likely enroll in and complete a two-year career program than we were in attracting students with vaguely defined goals who had the potential to consider nontraditional careers requiring postsecondary training. Again, this is as expected and supports our hypothesis that graduating female high school students tend to be more traditional than not, especially those who do not aspire to professional careers.

To a great extent we also fulfilled the secondary criteria we had established--representation in ethnicity, in sending high school, in interest in a variety of community colleges, and in problems with math. Math and science will be discussed first.

High school math and science. It has been stated that possible deficiencies in math and science, especially among the type of female with whom we are dealing, account for their underrepresentation in male-dominated occupations. Dislike or fear of math among women is hypothesized to contribute to their avoiding math courses when possible, and is believed to result in inadequate preparation for certain college curricula.

How did the applicants to the "from SENIOR to FRESHMAN..." program feel about math and science, and how much high school experience had they had in these areas? Tables 4 and 5 answer the first part of the question: What are their "two best" and "two worst" subjects? The first three columns in both tables represent, respectively, the two best and two worst

## TABLE 4

## BEST SCHOOL SUBJECTS: Overall Analysis of the Two (Combined) Best Subjects of All Applicants, and of Students Accepted and Not Accepted

(Figures in Percentages)

| BEST SUBJECTS | All Applicants (N = 321) | Rejected Applicants (N = 193) | Accepted Applicants (N = 128) | Attenders (N = 80) | Non-Attenders (N = 48) |
|---|---|---|---|---|---|
| English | 25.2 | 26.9 | 22.7 | 21.9 | 24.0 |
| Social Studies[a] | 13.2 | 14.6 | 11.3 | 13.1 | 8.3 |
| Secretarial Science[b] | 8.7 | 8.0 | 9.8 | 9.4 | 10.4 |
| Foreign Language[c] | 8.2 | 7.8 | 8.6 | 8.8 | 8.3 |
| Math, unspecified | 7.9 | 7.6 | 8.5 | 8.7 | 8.3 |
| Fine Arts[d] | 6.4 | 6.2 | 6.6 | 6.9 | 6.2 |
| Science, unspecified | 4.7 | 6.5 | 2.0 | 0.6 | 4.2 |
| Science, Regents[e] | 4.7 | 4.9 | 4.3 | 3.1 | 6.3 |
| Business[f] | 4.3 | 3.6 | 5.1 | 5.6 | 4.2 |
| Math, non-Regents[g] | 4.2 | 2.8 | 6.3 | 4.4 | 9.4 |
| Science, non-Regents[h] | 2.8 | 2.1 | 3.8 | 5.0 | 2.1 |
| Math, Regents[i] | 0.9 | 1.3 | 0.4 | -- | 1.0 |
| Clerical/Office[j] | 0.6 | 0.8 | 0.4 | 0.6 | -- |
| Miscellaneous[k] | 4.3 | 3.8 | 5.1 | 5.6 | 4.2 |
| NR | 3.9 | 3.1 | 5.1 | 6.3 | 3.1 |
| TOTAL | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

[a] Social Studies includes: social studies, history, economics, American studies, eastern civilization, geography, psychology, police science, criminal justice.

[b] Secretarial Science includes: stenography, typing, shorthand.

[c] Foreign Language includes: foreign language unspecified, Spanish Italian, French, Latin, German.

[d] Fine Arts includes: art, music, drama, photography, dance, sculpture.

[e] Science, Regents includes: biology, physics, earth science, chemistry, astronomy, physical sciences, eye science, oceanography, horticulture, animal behavior, geology, anatomy.

[f] Business includes: business, accounting, marketing.

[g] Math, non-Regents includes: business math, bookkeeping, recordkeeping, 9th year math, 10th year math, data processing.

[h] Science, non-Regents includes: health, hygiene, child care.

[i] Math, Regents includes: algebra, trigonometry, 11th year math, 12th year math, geometry, calculus.

[j] Clerical/Office includes: office practices, office machines.

[k] Miscellaneous includes: gym, computer science, nursing, electricity.

subjects of All Applicants, and of Accepted and Rejected ones. (Later we will discuss the last two columns headed "Attenders" and "Non-Attenders"--subsets of the group of accepted students.) The results are shown in percentages: thus, English was one of the two subjects listed as best subjects by 25 percent of All Applicants, by 23 percent of Accepted Applicants, and by 27 percent of the girls who were not accepted for the Workshop.

Most striking is the fact that, despite small differences in proportions, the rank order of best subjects for both the accepted and rejected groups is virtually identical (rho = .894). Each group said they did best in (or most enjoyed) English, followed by courses in social studies, secretarial science, foreign language, and "math" (unspecified).[1] The only two noteworthy differences concern "science" and non-Regents math: rejected candidates more frequently liked "science" than did accepted ones, but did not enjoy as much (nor do as well in) such courses as business math, bookkeeping, recordkeeping, and data processing.

The accepted and rejected groups of applicants were also highly similar in the school subjects not liked (or not enjoyed) (rho = .974). Both groups most often listed math (unspecified), social studies, Regents science, Regents math, and science (unspecified) as their five worst courses. Despite the fact that two of the same courses appear both as best subjects (Table 4) and worst subjects (Table 5), in general there is an inverse relationship; this is clearer for the accepted applicants than for the rejected applicants. A possible explanation may lie in the fact that the rejected applicants tend to be a more heterogeneous group.

As a rule, for all applicants, neither academic math courses (Regents) nor the hard sciences (Regents) ranked very high as best subjects, although this latter type of science course was more often listed as best. On the other hand, Regents science courses were slightly more likely to be a worst subject than were Regents math courses. This suggests a somewhat more extreme reaction to science than to math, a finding that should be explored more fully. Note, however, that in general math and science tended to be subjects that the majority of applicants could happily do without.

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[1] See Table 4 footnotes for complete definitions of these classifications.

## TABLE 5

## WORST SCHOOL SUBJECTS: Overall Analysis of the Two (Combined) Worst Stujects of All Applicants, and of Students Accepted and Not Accepted

(Figures in Percentages)

| WORST SUBJECTS | All Applicants (N = 321) | Rejected Applicants (N = 193) | Accepted Applicants (N = 128) | Attenders (N = 80) | Non-Attenders (N = 48) |
|---|---|---|---|---|---|
| Math, unspecified | 19.1 | 19.7 | 17.9 | 19.4 | 15.6 |
| Social Studies | 18.8 | 18.1 | 19.5 | 20.0 | 18.9 |
| Science, Regents | 11.1 | 12.0 | 9.8 | 8.8 | 11.6 |
| Math, Regents | 10.8 | 11.4 | 9.3 | 6.9 | 13.5 |
| Science, unspecified | 10.4 | 9.4 | 12.1 | 13.7 | 9.4 |
| English | 6.5 | 7.0 | 5.9 | 4.4 | 8.3 |
| Foreign Language | 3.4 | 2.3 | 5.1 | 5.0 | 5.2 |
| Secretarial Science | 1.8 | 1.3 | 2.3 | 2.4 | 2.1 |
| Fine Arts | 0.9 | 1.3 | 0.4 | -- | 1.0 |
| Science, non-Regents | 0.8 | 1.0 | 0.4 | -- | 1.0 |
| Math, non-Regents | 0.3 | 0.5 | -- | -- | -- |
| Business | 0.3 | 0.5 | -- | -- | -- |
| Clerical/Office | -- | -- | -- | -- | -- |
| Miscellaneous | 0.7 | 1.3 | 0.9 | 1.3 | -- |
| NR | 15.1 | 14.2 | 16.4 | 18.1 | 13.4 |
| TOTAL | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

[a] See Table 4, footnotes a - k.

This raises the question of the girls' experience in these areas. As seniors, are they taking math and/or science courses, and if so, what type: Table 6 summarizes the number of applicants currently enrolled in math and science courses.

As can be seen in Table 6, about two-thirds of All Applicants, Rejected, and Accepted Applicants were not enrolled in either a math or a science course. Approximately half the students were enrolled in a math course (Math, but not science plus Both math and science), and there is a larger proportion of students who are taking only a math course than there are students enrolled in only a science course. This is true for the total group as well as for those accepted and those not accepted for the Workshop.

In contrasting accepted and rejected applicants, we see that slightly more of the former than the latter group are not taking either math or science in their senior year (40% vs. 35%). Although similar proportions are enrolled in science courses only, somewhat more of the accepted than rejected applicants are enrolled in math courses only (38% vs. 24%). In other words, while equal proportions of accepted and rejected applicants are taking neither math nor science courses, rejected applicants are more than twice as frequently enrolled in both math and science courses than is the group of students accepted for the program. And, furthermore, the rejected candidate is less likely to be enrolled in only a math course.

TABLE 6

Proportion of Students Currently Enrolled in Math and Science Courses: Analysis of All Applicants and of Students Accepted and Not Accepted

(Figures in Percentages)

| STUDENTS CURRENTLY ENROLLED IN: | All Applicants (N = 321) | Rejected Applicants (N = 193) | Accepted Applicants (N = 128) | Attenders (N = 80) | Non-Attenders (N = 48) |
|---|---|---|---|---|---|
| Math, but not science | 29.6 | 24.4 | 37.5 | 37.5 | 37.5 |
| Science, but not math | 11.8 | 13.0 | 10.2 | 10.0 | 10.4 |
| Both math and science | 21.8 | 27.9 | 12.5 | 10.0 | 16.7 |
| Neither math nor science | 36.8 | 34.7 | 39.8 | 42.5 | 35.4 |
| TOTAL | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Because of the way the data is presented, the kinds of math and science courses in which candidates are enrolled is not apparent, and some important considerations are obscured: namely, 55 percent of All Applicants are taking Regents math courses (e.g., 12th year math, calculus, geometry, and trigonometry), and the remainder are in courses such as business math, 9th year math, and recordkeeping or bookkeeping. There is, moreover, a fairly substantial difference between the accepted and not accepted groups;

60 percent of the rejected applicants as compared with 45 percent of the accepted applicants who are enrolled in math courses are in Regents math classes. These academic mathematics courses are more usually required by four-year colleges.

Far fewer applicants are currently enrolled in science courses, and the difference between those accepted and not accepted for the Workshop is more dramatic than was the case for math. Of those taking a science course, larger proportions are in the hard sciences: 86 percent of All Applicants, 66 percent of Accepted Applicants, and 87 percent of Rejected Applicants are enrolled in such sciences as biology, physics, and life science. (The remainder are taking classes in such things as health, child care, and horticulture.)

Overall, more applicants are enrolled in math classes than in science classes, but those who take science tend to take the hard sciences. These facts lend some support to the hypothesis that science may be more of a problem to this population than mathematics.

To the extent that we were concerned with meeting the other criteria--representation in ethnicity, in recruitment from different high schools, and in interest in attending different community colleges--the applicants we accepted were appropriate. As already described, students from 62 public high schools submitted an application, and we accepted participants from 44 schools.[1] The 128 students invited to the Workshop were ethnically diverse: of those who responded to the question about race, 41 percent were black, 30 percent Hispanic, 5 percent oriental, and 24 percent other. (More than 65 percent, or 219, of all applicants were minority group members, and minority groups accounted for 76 percent of the acceptances. These proportions are comparable to the racial distribution of students in New York City schools.)

Although almost all of the accepted (and many rejected) applicants listed a community college among their first three school preferences, when the actual choices were examined there was an unanticipated outcome.

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[1] Unfortunately, there were no qualified applicants from 18 high schools.

A disproportionate number of applicants expressed interest in certain CUNY colleges (notably, LaGuardia), and none were interested in Hostos Community College or in Medgar Evers' two-year program. Table 7 summarizes the distribution of accepted applicants by college preference (using the first-choice college to the extent possible, and second and third choices as necessary.) This was the basis for grouping participants for all small-group Workshop activities. In looking at Table 7, it is important to keep in mind that the figures only approximate the extent of real interest in those particular institutions. That is, to form 10 small groups around as many colleges as possible, we limited the number of students with a preference for certain schools (when there were sufficient numbers to choose from, all other things being equal), and not in others. Thus, we accepted all applicants who met the major selection criterion of community college and who listed Bronx and the Borough of Manhattan Community College and the College of Staten Island, but did not accept all similarly qualified students interested in Kingsborough, LaGuardia, New York City, and Queensborough Community Colleges. As a matter of fact, had we accepted all qualified candidates expressing a preference for LaGuardia Community College, we could have formed more than four small groups.

TABLE 7

Grouping of Accepted Students as it Reflects Their
CUNY Community College Preference

| COLLEGE | Number of Acceptances | Number of Groups Formed |
|---|---|---|
| Bronx Community College | 8 | 1 |
| Borough of Manhattan | 12 | 1 |
| College of Staten Island | 8 | 1 |
| Kingsborough Community College | 16 | 1 |
| LaGuardia Community College | 30 | 2 |
| New York City Community College | 32 | 2 |
| Queensborough Community College | 22 | 2 |
| TOTAL | 128 | 10 |

These findings have significant implications for CUNY's community colleges and feeder high schools. For the purpose of the Workshop program, however, they had limited effects, requiring merely a small readjustment in how and from where we recruited group leaders. This process is described immediately below.

## Assignment of Groups and Recruitment of Leaders

To best meet the objectives of the program, most Workshop activity would have to take place in small groups of from 8 to 15 participants. How to group students and assign a leader required early decision. One possibility was to keep students from the same or from geographically contiguous high schools together; the advantage of this would be that most participants would start out knowing someone in the group and might feel more comfortable. Another option was to group students on the basis of occupational preference; groups would thus have a commonality of interest. This method, however, would give particular vocational areas an importance that was counter to a principal intent--namely, to expose students to a variety of occupational options. The third alternative for grouping participants was around the community college they were likely to attend. This became the basis for the formation of the groups. It had several advantages: participants would share a common future interest of fairly immediate relevance; each group would be exposed to the variety of occupational programs; and participants would have an opportunity to make friends with staff and other students whom they would see again in September.

The selection of group leaders was of major significance since most interactions would be between participants and that person. There were three feasible alternatives: high school (guidance) counselors, professional group leaders, or community college counselors. For several reasons, we decided on community college personnel with individual and group counseling experience. Such leaders, we felt, could create and maintain group identity and solidarity and were familiar with the target population and the general content of the Workshop program.

Originally, we believed candidates with an interest in all nine CUNY two-year college programs would apply, so we planned to have 10 groups, with 8 representing each of 8 institutions, and 2 groups with students likely to attend New York City Community College--the largest, by far, of any community college. Our final 10 groups were slightly different because (as we said) no Workshop applicants were interested in two of the colleges, but many more than we anticipated were interested in attending LaGuardia and Queensborough Community Colleges. As can be seen in Table 7, we formed the following groups: one for each of four colleges (Bronx, Borough of Manhattan, College of Staten Island, and Kingsborough) and two groups for each of three colleges (LaGuardia, New York City, and Queensborough). We were fortunate to recruit women staff members from these colleges who were active counselors and/or have had extensive prior counseling experience.

In addition to the primary consideration we gave to their skills in leading groups, we wanted to bring together a cadre of women who would be positive role models. The intensive small group work placed a burden on the leader who would not only carry the substantive load, but set a daily example of a woman who has successfully attained many occupational, schooling, and lifestyle goals. These ten women provided a wealth of personal resources; their diverse backgrounds proved a highly valuable asset. All had counseling experience with incoming community college freshmen. Most were working as counselors, although we included several who were currently holding other positions, such as Director of Admissions or Director of the SEEK program; many held special jobs (e.g., Assistant to the Dean of Students) or worked in special programs (e.g., Women's Centers). Before starting their career in counseling, seven of the women had been otherwise employed: as statistician, writer, legal defense aid, secretary, high school teacher, director of a social service agency, and social worker. All planned to continue working at more advanced levels, and many were contemplating a career change in the future.

As a group, they ranged in age and in marital and family status. Three were bilingual (Spanish-English), 4 black, 2 Hispanic, 1 Filipino, and 3 white. With the exception of one woman who is in the process of earning a master's degree, the others have extensive educational backgrounds: 1 has a doctorate in counseling, 3 are presently enrolled in doctoral programs, and 1 is pursuing a second master's degree. Four of the counselors were undergraduates at CUNY--one of whom graduated from the community college where she is now working; the remainder received their undergraduate training from colleges in New Jersey, Pennsylvania, the District of Columbia, Costa Rica, the Dominican Republic, and the Philippines.

With such rich experience, a minimal amount of training was required for the "from SENIOR to FRESHMAN: Career Paths" program. We provided training on a group or individual basis, only as necessary.

Although a script was developed to provide step-by-step instructions for the conduct of each of the four days of activity, it was expected that each leader would modify it to accord with her own style and would make use of particular techniques she found to be most effective. Personalization of the script was encouraged by IRDOE staff; we were usually told about planned changes beforehand and, when appropriate, such modifications were shared with the rest of the leaders.

IRDOE conducted a training session for all group leaders prior to the first March session for students. At that meeting the two-day March program was discussed in detail and the April program sessions outlined. Since we had drafted a script, as well as exercises and activities (see Materials section below), which many of the group leaders had already received, the meeting was devoted to highlighting the basic intent of each exercise, clarifying the flow from one activity to the next, and predicting students' reactions and suggested leader responses. At this and subsequent meetings, the leaders assessed the student materials, and their comments were generally incorporated into revisions.

Similar training took place prior to the April sessions. In addition to reviewing the script and activities, however, special attention was directed to problems of math and math anxiety. One half day of the total four-day program was to be spent on math. Counselors and mathematicians were to co-lead that session, which stressed both affective and cognitive issues. In preparation, we scheduled a full day of formal training for counselors and mathematicians early in April. Our consultant in math anxiety-avoidance led the discussion: the math session plan was reviewed, but most of the meeting was spent in simulation exercises. Counselors were encouraged to explore their attitudes toward mathematics, sharing experiences they had had as students in math classes. The feelings and situations they described were subsequently used as examples in the session with students. Counselor-mathematician teams were formed during the training; afterwards, IRDOE staff met with the counselors, the consultant worked with the mathematicians, and each team planned its final strategy.

## Guest Presenters

The mathematicians were one of three groups of women (other than the counselors) who played an important supplementary role in the Workshop. In this section we will describe these groups, focusing on their contribution to the program and the procedures by which they were selected.

Mathematicians. As already noted, a half day was devoted to small-group activity in math anxiety-avoidance. Female mathematicians and counselors were to lead this session jointly. The emphasis was on getting students to verbalize their feelings about the study of math--especially negative attitudes; and to help them recognize that negative attitudes may be tied to reluctance to consider certain courses and/or career options. To the extent possible, the student participants would also explore everyday problems that include the use of mathematics. We hoped to meet several objectives, including the fact that math is used to solve many daily problems; that all occupations involve math to a greater or lesser extent; and that math is not as rigid a subject as often experienced, but one that can be approached both logically and intuitively. Moreover, the interaction between counselor and mathematician was designed to demonstrate to participants that, similar to other courses, it is appropriate to question a math instructor's assumptions about both the content and the student's comprehension.

Eight mathematicians, 7 females and the male consultant,[1] were involved. Because the students had been divided into 10 groups, there was some modification in assignment for the math session; small groups were put together, and in these instances, two counselors shared responsibility with one mathematician. The consultant recruited the mathematicians and, as noted, trained them how to conduct the session.

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[1] The consultant, the Director of "Mind Over Math©," was the only male person with an active role in the entire program.

The mathematicians varied in age, background, and experience; 6 were instructors of mathematics and the remaining 2 were in business. They were not ethnically diverse (all were white), although they represented different life styles. Some appear to conform to the stereotype of mathematician--severe, humorless; others appeared less so. As a group, however, they were concerned people, expert in their field, and genuinely interested in communicating their excitement about mathematics to others.

College students. The half-day session that focused on the community college, its programs, requirements, and way of life took place on the afternoon of the second day of the Workshop (i.e., the last day before the month break). The counselor-leaders conducted this session, assisted by female students from their college who were graduating from nontraditional career programs. Not only were the counselors responsible for locating and inviting such a student to represent her college, but they were also asked to help these women write autobiographies and complete other tasks in preparation for the session.

Throughout the course of the Workshop, participants would be exposed to many women, women with jobs in which students might be interested, members of IRDOE's staff, the mathematicians, and so on. With the exception of this session, however, at no other time would they meet women so close to their age and backgrounds. Thus one of the major purposes of the session to which community college students were invited was to introduce our participants to women with whom they could most readily identify. While the group leader was the single best resource of information about such things as courses of study, student services, and admissions and placement tests, clearly the college students were well qualified to give the participants a sense of college life--what being in college feels like.

Eleven college students participated. (One group leader could not decide between two and invited both.) Most were minority group members (black, Hispanic, oriental); several were or had been married, and two had children. All were young, but four had worked after graduating from high school and before enrolling in college. In fact, these 11 women were very ambitious--those who had worked full-time were dissatisfied with the jobs they could get with no college training; and those who started college immediately after high school changed major several times, explaining that better opportunities would exist for them when they graduated from marketing, retail business management, hotel technology, computer science (including programming), and respiratory therapy curricula.

Working women. Another half day of the four-day program was set aside for participants to hear working women discuss their jobs and personal lives, educational and career history, and future plans.

We wanted to invite several women working in a variety of male-dominated occupations. Furthermore, we sought ethnically diverse women of different ages and marital and familial relationships, and whose lifestyles represented different ways of integrating work, school, and social responsibilities.

Finding women who met these criteria proved to be a major problem. In an attempt to locate likely speakers we made use of all our contacts in the public and private sector: we spoke with community college faculty who we believed could help us locate recent graduates who were now working; we contacted professional organizations and speakers' bureaus in various agencies and industries; we called colleagues in other universities for leads; and asked friends and neighbors at home and at work for advice.

Part of the difficulty arose because we wanted to respond to the interests of the student participants, which did not generally extend to the nontraditional occupations. We compromised, selecting some speakers because so many students had expressed interest in particular occupations (e.g., nurse and secretary), and others because they were nontraditional. In looking for a nurse and a secretary, however, we attempted to find women who had either come to the occupation in a nontraditional way (our nurse had spent many years in the military before going on to a two-year college nursing program), or who were employed in a particular job as an interim measure between decisions. In addition, when possible, we tried to recruit women who were in a field that corresponded to students' interests, but had an unusual occupation within that field. As an illustration, to meet student needs for information about social service careers (female-dominated field), we recruited a female police detective (male-dominated occupation).

Another totally unanticipated problem arose because of the videotaping. (Videotaping all whole-group and selected small-group sessions was an addendum to the original project design and required, among other things, agreement by all participants, students and adults.) Several working women (including 3 court stenographers) who had agreed to make a presentation to the whole group reneged as soon as they were told about the videotape. Our interpretation of these refusals is that women in nontraditional technical occupations generally do not have to perform in front of an audience, and we were requesting not only a public presentation but a videotaped one; this request was apparently overwhelmingly formidable.

The large corporations as well as the small businesses that were involved in trying to recruit presenters for our Workshop found it difficult to meet the criteria we established. We know of at least two instances where international corporations, which were willing to fund the cost of travel, could not locate female two-year college graduates in nontraditional occupations among their thousands of employees. In two other cases, a large banking institution and the Stock Exchange made it clear that they would not contribute speakers to the Workshop (assuming they could find appropriate ones) because they did not hire new employees from the ranks of community college graduates. While this may be a phenomenon unique to New York City, in our estimation it requires some serious consideration and examination.

The more than five months of work we put into finding a satisfactory group of working women was worthwhile, although still better representation of younger women, of minority group members, and of nontraditional occupations would have been desirable. The nine women who best fulfilled our criteria included a systems programmer (New York Telephone Company), travel agent (Alive Travel Company), senior secretary (CUNY's Graduate School and University Center), licensed registered nurse (Bronx Community College), advertising copywriter (N.W. Ayers, International), grants coordinator (CUNY's Research Foundation), police detective (New York Police Department), electronics product manager (Electro-Nucleonics, Inc.), and a chemical laboratory technician (Exxon, USA).

Five of the women were white and two were black. There was one oriental and one Hispanic woman. They ranged in age from 20 to the late

50's. Three were married and mothers. A few were recent college graduates--the youngest had been out of school for less than one year, and one of the older ones had been working for more than 24 years. Five of the women had changed careers or jobs multiple times, in contrast to one who had worked for the same employer for 20 years. Six had a community college degree (one of whom had subsequently completed a baccalaureate program), and one had a high school diploma. The other two women had graduated from four-year colleges. In terms of future plans, all intended to work for many more years. Most were not certain of what type of work they would be doing.

The cast of the "from SENIOR to FRESHMAN" program consisted of these 9 women who worked in predominantly non-academic settings, plus the accepted applicants, the college students, the counselor leaders, and mathematicians. They numbered 156 people, excluding IRDOE project staff, the videotaping crew, and Graduate School and University Center staff who assisted with such things as snacks and lunch, rooms and equipment.

The following part of this report describes the action--the Workshop program, then discusses the effects of the program on the participants, and ends with a summary section, with some recommendations. Before proceeding with a day-by-day account of the Workshop, we will describe the materials briefly.

## Workshop Materials

We prepared an extensive set of written materials for group leaders, and for student use during the program, and afterwards at home. Although the specific content of each piece is introduced in the next section of this report, some general principles deserve note.

The script. A detailed script was written to assist group leaders conduct the Workshop. From its inception, the intent was to design a self-contained guide that an experienced counselor could use with minimal training. The script provided an hour-by-hour scenario, complete with objectives to be met; illustrative examples and dialogue leaders could use to explain, introduce, or summarize a concept or activity; and time estimates. It also included supplementary exercises for groups that moved quickly, and set priorities for groups that needed more time.

Student activities. All student materials were color-coded (printed either on green paper or with green ink on white paper) for easy identification. Most of the materials designed for use during the Workshop consisted of worksheets, such as self-assessment exercises, that each participant completed as part of the small-group activity.

Other written material was for use at home. These included one-page autobiographies of every adult presenter; and facts about women in the work force, occupational information, and how math is used in careers.

Evaluation activities. Each student was requested to complete several questionnaires at the beginning and end of the Workshop and of some particular segments. These instruments assessed changes in participants' attitudes toward mathematics and toward male-female roles and asked their opinion about various aspects of the program. We felt students should keep a copy of these materials, but since we also needed copies, all evaluation instruments were printed on 2-ply NCR paper, with one copy retained by the student.

Brochures and pamphlets. In addition to general information that we wrote describing the CUNY community colleges' career curricula and occupations requiring two years of training, each student received two other packages of materials. The first set, provided by each of the counselors, consisted of publications the colleges put out for their incoming freshmen--handbooks from student services, course-program descriptions from different departments, and so on. The second package contained 60 career booklets; we obtained these in sufficient quantities through contact with more than 100 organizations, such as the American Physical Therapy Association and the National Association of Independent Insurers. A list of organizations that contributed literature can be found in Appendix C.

## THE from SENIOR to FRESHMAN... WORKSHOP

Since there were only four days in which to accomplish the project's goals, considerable effort went into translating our objectives into specific strategies and activities.

In considering alternate strategies, we had to weigh sometimes contradictory concerns. First, the tone of the Workshop as a whole and the particular pieces had to communicate our belief that the program was a special event and that the participants were special people. It was often difficult to strike the appropriate balance between treating the students as adults while setting up procedures to protect their safety and requiring their parents' permission. Second, we had to respond to participants' expectations and preferences, but at the same time keep to our agenda and focus on nontraditional occupations. We also had to match each activity to the students' current level of ability and to stretch their imagination. Furthermore, the tempo, content, and tasks had to be varied to maintain their interest, and had to have internal logic and consistency. Finally, built-in incentives seemed obligatory to assure continued attendance and, especially, their return in April.

Since participants were expected to attend all four days we expected some attrition, which did indeed occur. (The day-by-day attendance patterns were very unusual; they will be discussed in the next chapter on program effects.) To deal with the likelihood that more students would attend in March than in April meant that we had to design self-contained activities for those who would not return in April but ones that also related to later tasks. Early activites therefore had to be not only meaningful in and of themselves but able to promote maximum participation by relating to subsequent events.

### Day 1 - March 14, 1979: "ME, MYSELF, AND I"

The first day, like the other days, started officially at 8:45 A.M. when students were asked to report to a small auditorium at the Graduate School and University Center. On the first morning, several participants were brought by their mothers who told us they were concerned about their daughters' first "trip to the city"--i.e., to mid-Manhattan. As students arrived, they signed in, received their day's materials, and helped themselves to coffee, tea, milk, juice, and donuts.

Day 1 materials were given out in red looseleaf binders. Each participant received a name tag, paper and pencil, an overview of the four-day program, an agenda detailing their group and room assignment, a letter of welcome from IRDOE staff, a description of the participants, autobiographies of the group leaders (their own leader's printed on green paper), and two other things to read.

While waiting for everyone to arrive, participants completed the "Participant's Questionnaire" (which was also administered at the end of Day 4); this is a one-page assessment of attitudes toward and knowledge about women and work, and role responsibility. Staff collected one copy.

Introduction. The project director opened the Workshop by welcoming participants and discussing the program's goals. She introduced one of the group leaders who served as moderator for the four days. The moderator, in turn, told how the group assignments were made and explained why some sessions would take place in small groups and why others called for the whole group to meet together. The moderator also talked about important logistical information (i.e., the location of meeting, lunch, and rest rooms; where to meet friends at the end of the day; and so on). She introduced the group leaders, talked about videotaping,[1] and told them how to request a change in assignment which no one wanted.

Feeling Good. The first small-group session started at 9:30 A.M. and lasted approximately 2½ hours. After the leader and students introduced themselves, they centered on one activity, "Feeling Good About Myself." The leader began with an example (either one of her own or the one in the script) of an experience that made her feel good. Using a specially-designed worksheet, students recorded four similar experiences of their own. After some general discussion, each girl was asked to tell the group about one or two of her experiences. As she spoke, the leader extrapolated a list of values, interests, and skills implicit in the experience and recorded these on large sheets of newsprint. The members of the group were encouraged to join in the discussion, prompting and reinforcing the speaker.

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[1] All whole-group sessions held in the auditorium were taped. In addition, two small groups were alternated, thereby providing a complete transcription of what occurred in (selected) small groups. Although the leaders of these two groups were asked beforehand, their participants were not specially prepared.

The intent of this exercise is three-fold. It develops, in very short order, group cohesiveness. A student shares her personal experiences and receives the praise of listeners who, in turn, talk about themselves; this exercise stimulates the development of a mutual support system that is cumulative. Second, it fosters realizations that every person has had accomplishments in her life, some of which are similar to the accomplishments of others and some of which are unique. This activity thus dramatizes individuality and commonality, and promotes a positive self-image. Thirdly, by stressing values, skills, and interests, "Feeling Good" is easily transferable to educational and work experiences that call similar attributes into play. The students learned quickly that they perceive themselves positively when they are acquiring or using (manifesting) skills, values, and/or interests.

The variety in positive experiences was very interesting, as was the girls' growing acceptance that many things they had taken for granted were viewed as worthy of note. There were tales of learning to ride a bike, learning to read, etc., but it was not until this session, for example, that a girl who (for economic reasons) had to make or alter clothes for herself saw this as a positive skill. Another student of non-English-speaking parents, who had supervised her family's move to a new home in a new country, was similarly delighted to consider that she possessed such things as organizational ability and independence.

Group leaders were enthusiastic about the morning session. They and their students enjoyed "Feeling Good" and grew increasingly uninhibited and informal as the session progressed. As we will see later, the participants rated this activity highly.

Lunch. By noon students and staff gathered for lunch. The room was set up for a buffet (cold salads). Students and IRDOE staff and guests were encouraged to sit where they wished--leaders were asked, however, not to congregate at one table. The mood was warm and informal, and most students tended to sit with their group and continued to talk about themselves. They also began questioning the leader about her work and background.

__Skills, values, interests__. At 1:00 P.M. the students and counselors reconvened as small groups for the afternoon session, which lasted about three hours. As was the established policy during any session in which participants were subdivided, all IRDOE staff and guests were excluded from the meeting rooms, unless specifically invited by the group to join them.

The afternoon session continued the theme of learning about skills, values, and interests, although the nature of the specific activities changed. Following introductory remarks, the group leader set the stage by asking the girls to assess their own skills in a more systematic way. Participants were to read through a list of 36 skills ("What Are My Skills") and rate their current level of ability for each. While many of the items were familiar to participants (writing, speaking in public, computing), others needed discussion (word memory, number memory, manual dexterity, and so on). When each student was finished, she was instructed to select four skills she felt were her most outstanding and, turning to the next exercise ("How I Use My Skills Every Day") explain how each skill was used at home, at school, at work, alone, or with friends and relatives. This is a difficult exercise, but ties the checklist back to everyday experiences.

After about an hour, the groups focused on understanding values. Using a checklist ("What Are My Values?"), the participants examined 27 work-related values and estimated their importance. Again, they tried to translate the listed values into more familiar situations: "How I Manifest My Values Every Day" required each girl to select her four most important values and then to explain how each was manifested at home, at school, at work, alone, or with other people. As an illustration, "teamwork" at school may be seen when a student chooses to work on her assignments with others.

Through discussion, the group leader was to bring out the following points: people have the ability to assess their own level of skill; since skills are acquired, people can plan to learn new ones or improve their level of mastery; people can learn to recognize their own values; just as with skills, people differ in what they believe is important (i.e., of value); and people manifest their values in many ways as part of daily life. The leaders went on to explain the relation of skills and values to occupational choice and decision-making, although no exercise was used to demonstrate this point.

The day was concluded with participants filling out the Strong-Campbell Interest Inventory. The leader talked about its purpose and explained that each girl would receive her results on April 16 (Day 3). It was possible for us to have the results by the next day, that is, March 15, but we used the results as an incentive for girls to return in the Spring. As each participant completed the Inventory, she left for the day; we collected their looseleaf books so we could insert the next day's materials overnight.

The afternoon was somewhat less exciting for students than the morning activity for several reasons: they tired quickly--most of them were used to a school day that ended at 1:00 P.M.; and they felt that "there was too much writing." Their complaints notwithstanding, students generally seemed pleased, reporting that they were not accustomed to viewing what they did or knew as a "skill" and what they believed in as a "value." One student said, "I never knew I could do so much!" and another told us that "I didn't know that these things I took for granted were useful skills that I could use (sic)."

Many group leaders picked up on the students' feelings of tedium, and reacted by modifying the script as they went along. Some of the leaders had their groups do the four skills and values exercises orally. One leader revised the skills exercise by having her students classify the skills on the checklist according to the standard conceptual classification--people/data/things; she felt that this was an easier strategy for meeting the objectives. Another leader substituted a "Values Auction" for the values checklist. Using the value items on the list, students "purchased" values from the (imaginary) fixed sum of money they were allotted. The auction was a very dramatic technique for illustrating the relative importance of values to individuals.

## Day 2 - March 15, 1979: "MY COLLEGE, MY CAREER"

The second day of the Workshop was vastly different from the preceding one. There was more movement; for part of the day the participants' groups were reorganized; and many other presenters were introduced. It was a more difficult day for project staff logistically as well as in terms of content; it had to end on a very high note since we would not see the students for a month.

Day 2 was scheduled from 8:45 A.M. to 4:00 P.M. As students arrived they registered, had some refreshments, and received their notebooks which now contained, in addition to the Day 1 materials: an agenda plus room assignments for Day 2; autobiographies of the working women with a list of topics and questions to keep in mind while listening to their presentations; an overview of career programs offered by CUNY community colleges; autobiographies of the community college students, and samples of a first and last semester weekly program schedule; and instructions for how to request a transfer among community colleges and/or curricula. We also wrote and included a short fact sheet comparing the representation of women in traditional and nontraditional occupations. The girls took their notebooks home with them at the end of the day, promising to bring them back when they returned in April. All who returned remembered to do so.

As soon as the day began, it was immediately apparent that some changes had taken place. To begin with, no mothers were in evidence and many girls arrived together, indicating that they had made plans to do so. Second, many more arrived earlier than they had the day before and eagerly went through the new materials. Moreover, while on the first morning participants were friendly, but formal and reserved with one another and with IRDOE staff, by the second day they were much more animated and relaxed. As they waited for the session to start, they talked and laughed and asked questions. Their interest in each other and in the group leaders was obvious. It was equally obvious, however, that they were involved on another level as well--they surrounded IRDOE project staff, asked about other workshops, and wanted to know more about the work we do. They spoke with the TVG, Inc. people (the videotape crew) and with those serving refreshments--asking again and again about work. They were fascinated by the Graduate School, both in terms of its relation to the community colleges and as a beautiful building in which real students attended real classes. One of the outstanding, serendipitous decisions we made was to conduct the program there: smoking is permitted in the small meeting rooms, and the building is replete with lounges, paintings, and carpeted corridors. Graduate classes were in session, and our participants made it quite clear by their behavior and questions that they responded to the adult atmosphere.

Working women. The moderator started by welcoming the participants. Unlike the previous day, she spoke from a large raised stage that had been set up in the auditorium. She briefly explained that they were going to hear about careers from the 9 women who were seated at a large table on the stage, and introduced the first working woman. After being introduced one-by-one, each panelist spoke for approximately five minutes. Most covered the topics we had asked them to prepare: the nature of her work and what she likes and dislikes about it; when she first decided on her current career; her educational history and future plans. Some presenters also discussed how they managed multiple roles of worker, wife, mother, and housekeeper.

Obviously, the speakers were not equally exciting--although the participants were, at the very least, attentive--but each contributed some unique factor to the total panel: youth and age, risk and security, daring and dullness, love of job and just doing a job, were a small portion of what was communicated. Mutual respect between the women in the audience and on the dais was also evident.

As soon as the last presenter finished (to a round of applause), women and girls alike went on to the next activity, which lasted from 11:00 A.M. to 1:00 P.M. Each student had been assigned to two consecutive one-hour sessions with each of two presenters. The assignments were based on students' stated occupational interests and goals; although the match between a student and the two working women she met was by no means perfect, no student requested a change in assignment and the overall reaction was, "I got something out of talking to a __________, even though I wasn't really interested in it." Despite the fact that many students were interacting with strange peers and with adults they had not met before, this activity was effective. As intended, the guests spoke about their first job, the skills they use at work, why they work, how they cope with other responsibilities, and the problems and rewards they experience. The students spoke up very freely to comment and to elicit the details they wanted to know.

Lunch. Lunch was necessarily scheduled late, and the panelists remained for it. In response to the girls' suggestions we had revised the menu (sandwiches, punch, salads), which delighted them. (That is, the fact that we changed it--not necessarily the food itself.) At lunch the girls and leaders grouped themselves around the various panel members. We encouraged those students who wanted to talk to a presenter to whom they had not been assigned in the morning to do so at lunch. The conversation was animated; the girls asked questions of the women and responded to their questions. The women were as interested in the participants as the students were in them. One thing that we especially noticed was that, although the girls tended to sit with other girls from the last group to which they had been assigned, they introduced their Day 1 friends and leaders to the working women they had been with on this morning.

Community College. For the major part of the afternoon, participants met in the same small groups and with the same counselors as on Day 1. These groups, as you will recall, were constituted around the community college the student was likely to attend, and the session focused on that specific community college. The afternoon's guest was the community college student about to graduate; after being introduced, both she and the counselor worked with the group.

The group leader was prepared to discuss such topics as admissions and placement testing; registration and financial aid; career programs; and college requirements, differentiating among required and elective courses, core courses, and so on. She distributed packets of materials (student handbooks, college catalogues, curriculum guides, financial aid information) which she had gathered as part of the college's contribution to the program.[1]

The college student spoke about her experiences in college, highlighting differences between college and high school; what the professors were like and what they expected from students; and homework and assignments. In preparation for her role in the Workshop, she also described her program schedule as an incoming student, contrasting it with her schedule today. (Copies of these were included in the students' notebooks.) The participants were very surprised to learn that some courses (such as lab courses) could run for 3 hours at a time; that classes start as early as 8:00 A.M. or as late as 8:00 P.M.; that there could be 2 or 3 hours of free time between classes; and that most courses did not meet every day--that it was possible to schedule a program so that one or two days a week were free.

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[1] Some of the counselors' time represented the major and other contribution.

All group leaders reported that Day 2 was implemented as described in the script. Some important variations occurred, however, in strategy. For the morning, we planned that each working woman would talk to a small group about her current job, emphasizing the required skills and describing entry-level positions in the field. Although we had hoped students would ask questions, in all the groups student initiative determined the direction of the discussion. Guests did cover most of the topics we had planned, but students introduced other topics. Students were interested in: how did these working women coordinate their job and marriage, work and family responsibilities? What is it like to go to work for the first time? How do you know what to do: were there people at work who helped her the first day of the job; what assistance did the other workers provide; did she feel nervous, apprehensive when she first started? These concerns are enlightening when one considers that most of the students had part-time jobs themselves, either currently or previously.

The afternoon session was similar in that participants, by questioning the college students, took charge of the session, gathering the information they wanted about college life and college requirements. As reported by the group leaders, the participants were interested in a very wide variety of topics, including such an extreme as romances between professors and students. To accommodate participants' interest in the college student, most leaders extended the time devoted to this dialogue and cut down on the time they spoke, reminding students to read the college materials at home. In designing the program, IRDOE had hoped that students would assume increasing responsibility for the sessions, and they did!

Evaluation and farewell. At approximately 3:30 P.M. everyone reconvened in the auditorium where they completed the "Workshop Rating Form," a copy of which we collected. The moderator summarized the events of the first two days of the program, highlighted our plans for the last two days, and stressed their importance.

Participants were reluctant to leave. They made dates with one another and exchanged phone numbers. Two girls asked if we would give them notebooks for friends who had been there the first day but who were unable to attend the second. They told us that the friends had specifically asked them to do so and to tell us they would review the materials before they all returned in April.

## Intermission: March 16 to April 15, 1979

The interlude before the Workshop's third day was a busy time. During that month IRDOE staff and the group leaders met to assess the first two days, prepare for the last two, and be trained in math-anxiety. Materials for the April sessions were revised and reproduced in quantity. Approximately one week after Day 2, we wrote to all students who attended either March session, thanking them for coming and reminding them we expected them to return. A second letter, mailed a week before April 16, provided detailed information about time and place. Moreover, we wrote to all schools from which we had invited participants, notifying them of the actual attendance on Day 1 and Day 2. And we got back the results of the Interest Inventory and gave each leader copies of the results for the students in her group so that she could review them before April.

Several students called to say that they would not be able to come in April. Some had part-time jobs and used the Spring recess to work more hours. Others had obtained temporary jobs for the period, and a few had family responsibilities that prevented them from attending. Partially to make up for the attrition, we decided to invite again all accepted applicants who had not attended the March sessions. Although it seemed unlikely that many would attend (since they did not come in March when they were excused from school), we felt that some attempt to reach them should be made. Once this decision was implemented, however, some special provision had to be made for them; we felt they could not join the established groups since these were functioning well, and the newcomers would not be familiar with the materials previously covered.

We therefore formed a new group, to consist of all students who showed up in April who had not participated in March; this group would not have a specific community college identification. We recruited an experienced counselor to lead this group and developed an abbreviated program for them for the two days. The design included most of the Day 1 activities ("Feeling Good About Myself," "What Are My Skills," and "What Are My Values"), plus a condensed version of Day 3 and Day 4.

## Day 3 - April 16, 1979: MATH AND OTHER CAREER INTERESTS, REVISITED

On their first day back students began to arrive at 8:15 A.M., a full half hour earlier than scheduled. They were very glad to see each other, talked about what they had been doing, and seemed genuinely excited and interested in the coming day's activity. As before, we served refreshments, responding to their request for more juice-less coffee, more chocolate-covered-less plain donuts. As they registered, they were given a folder of materials to insert in their looseleaf notebooks. The materials included: a welcome back letter; a math attitude survey ("Participant's Opinion Survey") which they completed as they waited for the session to begin; a description of some common occupations, highlighting the use made of mathematics; autobiographies of the mathematicians; and the Day 3 agenda with group and room assignments.

Mind Over Math©. After the moderator welcomed them back and told them briefly about what they would be doing, she introduced the guest speaker, the Director of "Mind Over Math." After playing a recording of an amusing song about math, he talked about his background in math and counseling and explained his interest in the large number of people who dislike or are apprehensive about mathematics. He gave examples of some of the negative reactions people have when confronted with math problems in the classroom and spoke of the work being done to assist such people in dealing more productively with their anxieties.

Math groups. For the remainder of the morning (approximately two hours), the participants met in small groups with their counselor(s) and a mathematician. Eight such groups were formed, and by consolidating the smaller ones (and the newly formed one of 3 students), we managed to keep the college-based groupings essentially intact.

After being introduced, the mathematician talked about herself and her work. The plan was to encourage the students to share their feelings about math and science and about some of their experiences in math classes, including positive and negative reactions to the teachers. The groups were also to discuss the use of calculators, characteristics of good math teachers, the need for math skills in the careers they were considering, and the kinds of math courses required and offered in college. To stimulate discussion, the mathematician distributed "Math Games We Play On Ourselves," a list of self-defeating statements people often make when working on a math problem (e.g., I don't do math fast enough; everybody knows what to do except me).

Several math situations from everyday experience were also presented, and participants were to make up problems and suggest productive approaches to solving them. In case a group finished early, other activities had been designed--including practicing decimals or percentages, as an example, or working on word problems.

This session represented the most extreme departure from the program script in terms of both the order of activity and in the specific techniques and examples. The group leaders reported, nevertheless, that the session had met its basic objectives. The participants' reactions are discussed in the next chapter.

The plan was to use the students' responses to the "Participant's Opinion Survey" (the math attitude questionnaire administered earlier) as a jumping off point. While some groups did so, others began with discussions of how to solve specific math problems. In at least one group, the mathematician and counselor started by talking about their own experiences as students in math courses.

To generate problems, four groups used the prepared set of everyday situations requiring math. In three groups, the co-leaders had the students make up situations of their own. The mathematician assigned to the eighth group brought her own set of written problems. One mathematician distributed Cuisenaire rods to each student and asked them to create math problems using these different sized wooden rods: she and the leader elicited students' reactions to the exercise and continued with a discussion of alternate ways to solve a problem. In still another group, participants role-played a math class, with a student as teacher.

It was interesting that there seemed to be two fairly distinct patterns: half the groups finished early; the others were too involved to want a scheduled mid-morning break, and carried their involvement to lunch, during which time they all continued talking about math problems and math as a job skill. Aside from suggesting the particular leader and/or the particular mathematician as a possible reason we cannot account for the differences in the groups' interest.

Lunch. Lunch arrangements were similar to those described previously. Since food was so important to the participants (possibly because it was something tangible over which they could try to exercise control), we substituted cold hero sandwiches for the tuna and egg salad, and potato chips for the lettuce and tomatoes. The girls were much happier, although many leaders who knew about the menu in advance brought lunch with them.

A public address system was set up in the room; several announcements had to be made, and staff needed to locate some participants to ask them to complete some forms. By this third day of the Workshop, the students were confident and comfortable enough to ask to use the microphone. Approximately a dozen did so, using the opportunity to thank IRDOE staff, the leaders, and the guests, or to publicly proclaim their groups' accomplishments.

Career information. In addition to dealing with the issue of math anxiety and math avoidance behavior, the morning session served as a transition from a focus on self-awareness (the major aspect of Day 1 and Day 2) to more of an emphasis on the external world. Satisfactory career planning is a merging of understanding the self and the opportunities and requirements that exist outside. The primary objective of the 2½ hour afternoon session was to help students learn how (and what) to learn about careers and how to gather the important information.

The session began with a discussion of the results of the Strong-Campbell Interest Inventory.[1] As each student got her copy of her results, the leader provided an orientation to their interpretation and use. Some students were surprised by their results, but most were not. They were, however, intrigued by "how this test knows so much about me."

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[1] Group results are summarized in the following section of this report.

We had ordered individual interpretive records, which are available for the Strong-Campbell Interest Inventory. These records list a number of occupations that accord with the student's pattern of response. Using these job titles, the leader introduced the idea that perhaps the group might want to learn something about these occupations. And as we anticipated, they did. Many had never heard about some of the occupations the Inventory results suggest for consideration, and all participants wanted to know more about them. The leader instructed each girl to select one or two occupations that ranked high on her results--ones that were different from what she thought she was interested in as a career choice--and directed her to use the career information in the room as a starting point.

Each room had copies of the Dictionary of Occupational Titles, the Occupational Outlook Handbook, and more than a sufficient number of sets of career booklets (see Materials) for each student. To supplement these, we had written one-page descriptions of 26 occupations, plus a guide called "Sources of Career Information: A Bibliography." We had also prepared a worksheet, "Career Characteristics Data Form," which the leader distributed. It includes categories of information that describe an occupation, and enables the user to compare and contrast occupations along similar dimensions.

The students' first reaction was, "There's too much to read!" Within moments it changed and they became absorbed in the task of compiling information. Most had never seen a career brochure before and none knew about the standard reference works. While the participants worked at this, the leader circulated and discussed the results of the Interest Inventory with individual students--at times interrupting the group to explain what such things as employment outlook or entry-level salary meant.

The day ended with the group leader summarizing the need for career information and the assignment of a homework problem for the next day (the only such assignment made). They were to assume they were coming to a group reunion after 10 or so years, the leader explained, and they were to think about what they had accomplished in those intervening years, so they could share this when they met as old friends. Each student was to be prepared to write, draw, or talk about the course her life had taken.

As the girls left for the day, carrying home all the materials, three students asked for extra sets of the career information packages (enough were available) to give to their friends and high school teachers and counselors. The next day, Day 4, several more girls made the same request, with which we gladly complied.

## Day 4 - April 17, 1979: "MY CHOICE, MY FUTURE"

To do justice to the atmosphere on the last day of the Workshop requires a writer far more skilled than the authors of this report. As early as 8:00 A.M. the auditorium was a buzz of excitement. Students were busy talking about the reunion and about graduation, and they were making secret plans of their own. Later, as the group leaders arrived, they were greeted warmly and sat surrounded by their group waiting for 8:45. Many students had dressed for a speical occasion and there were one or two mothers and boyfriends in evidence.

Before the formal start of the session, they had some refreshments and filled out the "Participant's Opinion Survey" (the math attitude posttest), but most were too excited to review the Day 4 materials. These included an agenda and room assignments; "My Career Plan" worksheet; "Cindy's Problem: A Story"; "When I Make a Decision..."; "Next Steps"; and a farewell letter from the staff. After a brief welcome, the moderator directed the participants to their small groups.

The reunion. Students were fascinated with the assignment and were eager to talk about their dreams and images of the future. Each room had been supplied with large sheets of newsprint (taped to the walls) and large colored crayons. Using these, the girls started to write a narrative or outline of what their lives had presumably been, or to draw pictures or diagrams. For a while the groups were permitted free rein--running in and out of the rooms to dramatize the entrance of "an old friend," warmly embracing one another, and shouting a barrage of questions. After the initial drama, each participant in turn talked about her imagined future. The leader, with the support of the group, helped the student elaborate on the events of the intervening years. They elicited a sequence of events (e.g., was the baby born before or after they graduated) and specific details (e.g., in what major they graduated from college), and the leader guided the discussion so that each student converted her images into lists of long-range educational, occupational, and lifestyle goals. Most groups also asked the leader to imagine her life in the future.

Career planning. Once everyone had a turn, the leader formed two or three small teams to consider how we get from where we are to where we want to be. Using the example of a family's move to a new apartment, each team was asked to list the things to be arranged, the decisions and preparations to be made, and the best order in which everything should occur. The teams then compared plans. It was an interesting exercise for the students, especially since so many wanted to move into an apartment of their own after they started college.

As soon as the leader felt they understood the process involved in planning, students began to work on "My Career Plan." Each was to list two important educational and/or vocational goals, both of which should be accomplishable in the next eight years. For each goal, the students listed the prerequisite steps and decisions. Although each student worked alone, the entire group discussed their plans as they evolved, helping one aother. The counselor often referred them back to the move to the new apartment activity, having to remind them frequently to keep their goals within realistic time frames and in appropriate sequence, and to include all the necessary steps. The morning concluded with the leader summarizing the need for planning, the importance of periodic update, and the revision of plans based on new experiences and information.

Lunch. While eating hot hero sandwiches (and an extra special dessert), the students and leaders continued their discussion. They talked about their goals and expectations. Several groups made specific arrangements to meet in September at the college in an attempt to keep together.

Career decision-making. To start the two-hour afternoon career decision-making session, each small group leader raised the question of conflicts that arise in planning and in implementing a plan. After reading "Cindy's Problem," a story of a community college student with a conflict between work and school, small teams were formed. The teams analyzed Cindy's problems, proposed alternatives, and selected the best solution. As a group they discussed the problem-solving process and alternative solutions. The leader, drawing on their Day 1 experiences, highlighted the role of values, skills, and interests in decision-making. As a summary exercise, the groups discussed "When I Make a Decision"--a list of common mistakes people make in trying to reach a decision.

The next activity continued the discussion of occupational or educational choice. In each group, girls volunteered to describe a choice they were having (or going) to make (e.g., what curriculum to major in); then, using "Cindy's Problem" as a model, the group began to generate options and to discuss the implications of each. The last activity was titled "Next Steps." It was a list of things to do and read, people to talk to, and information they needed. Each had to check what next steps she felt must be accomplished in the next three months, as the first stage in implementing a plan leading to her goal.

Day 4 closely followed the script. It was somewhat full, especially the afternoon, requiring the leaders to modify the time allotted to the separate activities. Although all groups covered all activities and in the prescribed order, several objected to the amount of writing; in response, a few leaders had the students complete the exercise aloud, or, alternatively, assigned one of the mini-team members to do the writing.

Apparently, Cindy's conflict was perceived by the participants as "too simple" and Cindy herself was described as "too naive." Times have indeed changed since the story's authors were high school senior girls. Every group completed this exercise, however, and went on to discuss their own more complex problems in greater depth.

Graduation. By 2:30 P.M. the participants had assembled in the auditorium for the graduation ceremony. It was clearly evident that what we had planned as a nice way to conclude and commemorate the program was perceived by the students as an important recognition of the work they had done and of the effort expended by the adults--particularly the counselors, although IRDOE staff was included--in their behalf. The simple ceremony gave them an opportunity to express their happiness. While they were waiting for the keynote speaker, they completed the "Participant's Questionnaire" (posttest) and an "End of Workshop Rating Form." Again, both we and they retained a copy.

President Ursula Schwerin began the ceremony. She is the first female President of a CUNY community college and, as she told her audience, a graduate of that very same school--New York City Community College. She spoke about her first career as a technologist, at which she spent many years; and about her career plans as they evolved and were fulfilled. She talked about the need to make career plans and stressed the importance of occupational planning for women in today's world.

President Schwerin then introduced each group leader, who made a brief speech and presented a "Certificate of Workshop Completion" to each member of her group. Groups, in turn, unexpectedly presented counselors with gifts expressing their appreciation: cards, a flower, cologne.

## WORKSHOP IMPACT ON PARTICIPANTS

In designing a program like "from SENIOR to FRESHMAN" it is not possible to predict precisely either the number of invited participants who will attend or whether this subset will represent a group with special or different characteristics. Prior to discussing the impact of the Workshop on the student participants, and in order to generalize from the results, we will contrast the attenders and the non-attenders. The question we will address is whether attenders do, in fact, adequately represent all accepted applicants. An attender is defined as any student who submitted an application, was accepted, and came to at least one session, while a non-attender is a student we had accepted but who did not attend any session. Most non-attenders did not inform us in advance (although apparently several informed their high schools of their intentions), but 9 called to explain; their reasons for not coming included illness in the family, and a conflict between the Workshop and a part-time job or special school event.

### Attendance

Of the 128 students invited to the Workshop, a total of 80 different girls came to at least one session. In addition to these 80 who were invited, four other students, who had not applied nor been invited, showed up and (after we made arrangements with their sending high schools) were permitted to participate.[1] Thus, the actual number of different students who were involved in the program totaled 84. Of this total, 8 attended on one day only (not necessarily the first day), 13 came on two days (not necessarily consecutive days), 12 on three days, and 51 students showed up on each of four days.

Table 8 (on the following page) shows the daily attendance figures. Although there was overall attrition from the first to the last day, what is remarkable about the pattern is that attendance was higher on Days 2

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[1] These 4 should not be confused with the 3 students--newcomers--who were specially re-invited to the April sessions and for whom we formed an 11th small group that went through a condensed program. Two of these 3 newcomers had been invited originally (i.e., are counted in the 128 acceptances), while one girl was one of the 4 who showed up unexpectedly.

TABLE 8

Daily Student Attendance

| Day and Date | N Students Attending[a] |
|---|---|
| 1, March 14 | 74 |
| 2, March 15 | 76 |
| 3, April 16 | 58 |
| 4, April 17 | 65 |

[a] Includes the girls who came without invitation plus the three who were invited to attend the April sessions.

and 4 than on Days 1 and 3. It was also on Days 2 and 4 that unexpected participants showed up, usually urged to do so by friends who had come the day before. One of these girls was particularly amusing, posing as an invited participant (who could not attend) for most of the day, but telling us her real name at the end of the day when she asked to attend the next day's session.

### Comparison of Attenders and Non-Attenders

This section, which seeks to ascertain differences between the attender and non-attender groups, is based on application form information, and is therefore limited to the total 128 accepted applicants--80 accepted attenders and 48 non-attenders--unless otherwise noted.

College preference. Is there a difference between the colleges attenders chose as compared with those listed by non-attenders? Earlier, we compared the college preferences of applicants who were accepted for the Workshop with the ones of those not accepted. In the same way we will now examine the postsecondary educational preferences of attenders and non-attenders, presented in the two right-side columns of Table 1, page 16.

We saw previously that almost all of the accepted group (98%) met the primary criterion of wanting to attend a community college. Here, the question is whether there are any systematic differences in the choices of attenders and non-attenders. In other words, did attending the

Workshop somehow self-select a group that differed from the total accepted group? The differences between attenders and non-attenders are much smaller than the differences we saw between the accepted and rejected groups. (Note that this is an expected result, since we accepted students because they met this criterion.) All attenders listed a CUNY community college as one of their choices, as did 96 percent of the non-attenders. Non-attenders showed a slightly greater preference for a four-year college (attenders, 59%; non-attenders, 67%).

Educational aspirations. Just as we compared the highest level of education desired by applicants accepted and rejected for the Workshop, so too can we contrast attenders and non-attenders in this way. Referring back to Table 2 (page 18), again we find that the differences between attenders and non-attenders are less dramatic than those between accepted and rejected applicants. Interestingly, however, although there was little difference in college preference, 56 percent of the attenders aspire to a baccalaureate degree, while the non-attenders as a group have lower aspirations--only 44 percent of them want more than an associate degree.

Attending a program, in and of itself, can be interpreted as reflecting a high level of motivation. In light of this, a possible conclusion from these results is that attenders, as compared with non-attenders, have greater motivation for obtaining advanced education; their slightly lesser preference for a four-year rather than a two-year college may represent a more realistic choice in terms of their assessment of their own capability or of their current economic and family circumstances.

Career choice. In comparison with accepted applicants, do the first choice careers of attenders and non-attenders differ, and if so, is there any distinguishing pattern? It is immediately obvious in inspecting the number of different categories we used to classify careers in Table 3 (page 19) that the choices of the attenders are more diverse than those of non-attenders. Most girls in both groups wanted a career in health, business, or secretarial science; these categories accounted for the responses of only 62 percent of the attenders, but 74 percent of the non-attenders. Attenders tend to be somewhat more interested than non-attenders in careers in health, social service, computer science, and education; non-attenders, in contrast, relatively more often wanted careers in business, secretarial science, and social science. There is no distinct pattern in terms of traditionality (per se) of the career preferences.

In responding to the question about the likelihood of achieving the career of their first choice, the responses of the attenders and non-attenders were more dissimilar than those of the accepted and rejected applicants. The results for attenders were that 67 percent felt it was "very likely," 29 percent "somewhat likely," and 4 percent "not very likely." The corresponding figures for non-attenders were 79, 17, and 4 percent. Thus the attenders were somewhat less confident than the non-attenders about achieving their first-choice occupational objective--and the attenders were much less confident than the applicants who were rejected for the Workshop.

High school math and science. When we ranked the two best (most liked) high school subjects of applicants accepted and not accepted for the Workshop we found a high correlation (rho = .894) between the subjects listed. The rank order correlation between the best subjects of attenders and non-attenders is .773, moderately high.

Although attenders and non-attenders tended to like the same subjects (and especially English), more attenders preferred social studies and non-Regents science (see Table 4, page 23). A larger proportion of non-attenders liked Regents science and non-Regents math.

Turning to their two worst subjects (Table 5, page 25), the subjects the attenders and non-attenders disliked were much more similar (rho = .971) than the subjects they liked. This was also true of accepted and rejected applicants; that is, these groups were more similar in what they did not like than they were with respect to what they liked. The five worst subjects of the groups and subgroups are identical and reflect nearly identical proportions of respondents: more girls disliked math (unspecified), social studies, Regents science, Regents math, and science (unspecified).

Irrespective of likes and dislikes, are there differences in the number of attenders and non-attenders enrolling in math and science courses? Table 6, page 26, allows us to examine this question. Almost exactly the same proportions of both groups are enrolled in math but not science (38%), and in science but not math (10%). More of the non-attenders are enrolled in both science and math (17% non-attenders, 10% attenders), while more of the attenders are taking neither (43% attenders, 35% non-attenders). In fact, then, in relation to these two subjects, it is most likely that seniors in both groups are taking neither math nor science, or only math.

Does the greater enrollment of non-attenders in both these subjects mean that they are more academically oriented? Not necessarily. As a matter of fact, a somewhat smaller proportion of non-attenders as compared with attenders who were enrolled in a math course in the senior year were in a Regents course (46% of the non-attenders and 50% of attenders were taking geometry, trigonometry, calculus, etc.). More non-attenders also list Regents math as one of their worst subjects (Table 5, 14% non-attenders, 7% attenders).

When we compared enrollment in math with that in science, far smaller proportions of both attenders and non-attenders report taking any science course in their senior year (20% attenders and 27% non-attenders). But of those who were taking science, there was a very large difference (although the Ns are small) in the type of science course. Only half of the attenders, in contrast to 85 percent of the non-attenders, were enrolled in the hard sciences, classified as Regents science. Slightly more non-attenders listed Regents science as one of their worst subjects (12% non-attenders, 9% attenders).

To summarize: Most seniors are taking neither math nor science, or only math. In contrast to the attender, the non-attender is more likely to be taking both math and science or only science (since attenders and non-attenders are equally likely to take only one of each of these subjects). The girl who does not attend and who is taking science is much more likely to be taking an academic science course than the attender who is taking science, and the non-attender is more likely to indicate that it is one of her best liked subjects. Attenders who are taking math, in contrast to the non-attenders who are taking math, are somewhat more likely to be enrolled in a Regents math course and less likely than the non-attender to dislike it. Since all applicants had been informed that math was one of the Workshop topics, one possible conclusion is that we lost--in advance--those students who are having problems with math.

In terms of other measures (i.e., criteria), the Workshop attenders and non-attenders were very similar. Similar proportions wanted to go to specific community colleges. The non-attenders were not all clustered from the same sending high schools, although seven of the high schools from which we had invited applicants were not represented due to non-attenders. Moreover, the ethnicity of attenders and non-attenders was nearly identical[1] (Black, 40% vs. 42%, respectively; Hispanic, 30% vs. 30%; Oriental, 5% vs. %5; and Other, 25% vs. 23%). Three-fourths of the attenders were minority group members as were 77 percent of the non-attenders.

Does all this information help us better predict who will attend and who will probably not attend a Workshop program similar to "from SENIOR to FRESHMAN..."? In other words, are there systematic, self-selected differences between attenders and non-attenders? Before reviewing the data presented in this section, let us first examine whether the proportion of invited applicants who did attend (80 of 128, or 62%) is representative of the attendance in other, similar situations. Such a comparison can be made between this program and a similar one the authors recently conducted.[2] Despite differences in the age group, ability level, and program duration--as well as other substantive concerns--"from SENIOR to FRESHMAN..." had a higher rate of attendance than did the one-day Science Career Workshop: 62 percent vs. 54 percent. Some of this can be attributed to weather (March-April vs. December), and some to the fact that we are comparing a combined four-day attendance with a one-day program. At any rate, based on these two experiences, one might expect from roughly half to two-thirds of invited participants to show up. The immediately obvious programmatic implications are to invite substantially more students than the desired number and/or to focus on those most likely to attend. To do the latter, however, requires more understanding of the characteristics of this subset of students.

To highlight (and perhaps exaggerate) differences between attenders and non-attenders, we have seen that neither group showed a preference for a particular CUNY (community) college. Slightly more non-attenders preferred a four-year to a two-year college (when all three preferences were combined), but more attenders aspired to a baccalaureate degree. It is most likely that attenders and non-attenders were taking neither math nor science, or else only math. Attenders were somewhat more likely than non-attenders to be taking math and Regents math, and comparatively fewer attenders reported disliking Regents math courses. But attenders were somewhat less likely than non-attenders to be taking both math and science in their senior year.

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[1] Identical proportions also did not answer this question.

[2] Op. cit. IT'S MY LIFE.

The occupational preferences of attenders were more heterogeneous than those of non-attenders, although neither group was particularly nontraditional in their career choices. At the same time, attenders were less likely to be as confident of achieving their aims. This very unsureness may motivate them to attend--if a student feels she knows all the answers about her future plans, she has no need to attend a Workshop program like this one.

Since attenders, by definition, came to the sessions, motivation must be a primary differentiating factor. The data presented above also suggests that attenders generally seem more constrained (the variance between their preference for a two-year college and a more advanced degree), or realistic (this same variance can be interpreted as a more accurate assessment of their prior academic performance), but are clearly less confident of achieving their objectives. This composite description is not good enough for predicting attendance, but it does raise questions that might be explored in the future.

Two other pieces of data are available for attenders and non-attenders (accepted applicants), as well as for rejected applicants. First we will examine, for attenders and non-attenders only, the college experience of the respondents' family members, and secondly, student expectations concerning the Workshop.

Family college background. The career choices of a large majority of female college students have continued to be in occupations traditionally held by women, despite the great amount of effort put into reducing occupational stereotypes. We hypothesized that one reason for this "clinging to traditionality" might be the fact that many of these women are the first-generation college-goer in their immediate family and, as a result of breaking ground in this way, are reluctant to choose careers too far from the expected (i.e., the traditional) career. This might be especially so, we felt, if the student was the only or first female college-goer in her family. To some extent Table 9 (on the following page) allows us to examine these assumptions for our group of prospective college students, as well as differences between attenders and non-attenders.

## TABLE 9

## College Background of Attenders' and Non-Attenders' Immediate Family Members

| FAMILY MEMBERS WITH SOME COLLEGE EDUCATION | Accepted Applicants | | Attenders | | Non-Attenders | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| *All Accepted Applicants* | | | | | | |
| I. Minimal Number of Family College Attenders | | | | | | |
| Two or more | 21 | 16.4 | 10 | 12.5 | 11 | 22.9 |
| One | 52 | 40.6 | 35 | 43.8 | 17 | 35.4 |
| None | 13 | 10.2 | 11 | 13.7 | 2 | 4.2 |
| NR | 42 | 32.8 | 24 | 30.0 | 18 | 37.5 |
| TOTAL | 128 | 100.0% | 80 | 100.0% | 48 | 100.0% |
| *Applicants with Family Members Who Attend(ed) College* | | | | | | |
| II. Sex of Family College Attenders | | | | | | |
| Male(s) only | 32 | 43.9 | 22 | 48.9 | 10 | 35.7 |
| Female(s) only | 25 | 34.2 | 18 | 40.0 | 7 | 25.0 |
| Male(s) and female(s) | 16 | 21.9 | 5 | 11.1 | 11 | 39.3 |
| TOTAL | 73 | 100.0% | 45 | 100.0% | 28 | 100.0% |
| III. Relationship of Family Member to Student | | | | | | |
| Parents | | | | | | |
| Father only | 10 | 13.7 | 6 | 13.3 | 4 | 14.3 |
| Mother only | 6 | 8.2 | 5 | 11.1 | 1 | 3.6 |
| Siblings | | | | | | |
| Brother(s) only | 19 | 26.0 | 13 | 28.9 | 6 | 21.4 |
| Sister(s) only | 17 | 23.3 | 11 | 24.5 | 6 | 21.4 |
| Combinations | 21 | 28.8 | 10 | 22.2 | 11 | 39.3 |
| TOTAL | 73 | 100.0% | 45 | 100.0% | 28 | 100.0% |

Table 9 summarizes the college background of the attenders' and non-attenders' immediate family members, including mother, father, sister(s), and brother(s). Unfortunately "no one" or "none" was not listed as a response option, but several students wrote this in the margin of the application form (see "None" in Part I of the table). As a result, there were many "no responses" (see NR in the table). Since no responses were very small on all but one other item(ethnicity), it seems fair to assume that most of these represent "none" or "no one." Before inspecting the data, some general orientation may be helpful.

Part I of the table indicates the number of respondents who had none, one, or two or more different family members who had college experience: that is, Part I represents the number of students who checked two or more of the response options--mother, father, sister(s), brother(s)--one of the options, or none of them. The second section of the table, Part II, uses the same information, but examines the sex of the family member. The percentages are calculated only for those students who did have some family member with college experience. Male(s) include a father and/or a brother(s), while female(s) include a mother and/or a sister(s).

Part III of Table 9 looks at the relationship of the family member(s) to the students, and like Part II includes only those students who had one or more members of the family attend college. The data is presented by specific relationships (e.g., mother only, brother(s) only, etc.); combinations refer to all possible combinations of the four response options.

Almost three-fifths (57%) of all accepted applicants and similar proportions of Workshop attenders and non-attenders, had college attenders in their families. Attenders, to a somewhat greater extent than non-attenders, however, tend to come from families where only one member had college experience; the attender group was also more likely to be from a family in which no one went to college. Thus in general, only 4 out of 10 accepted applicants are first-generation college-goers, but attenders are somewhat more likely to be--or to be from families with only one experienced college attender.

What was the sex of the family member(s) who had attended college? Part II indicates that all accepted applicants were most likely to have had only male(s) college attenders in their families (44%), followed by only female(s). This pattern is also true for attenders; they are most likely to have had only male(s) in their family (49%) and least likely to have, as expected based on Part I results, both male(s) and female(s). The pattern does not hold up for non-attenders who are most likely to come from families in which both male(s) and female(s) attended college and least likely to have had only females attend college. One conclusion that tends to be applicable to all groups of students is that more male (father and/or brother(s)) than female (mother and/or sister(s)) relatives have gone to college. Relatedly, attenders much more so than non-attenders are more likely from families in which only males or only females attended college.

When we examined the same data reclassified by relationship between the respondent and the family member (Part III, Table 9), we see first that in every group more siblings than parents (mothers or fathers) have gone to college. This is an expected outcome that needs little elaboration in light of the respondents' socioeconomic status and ethnicity. What is more interesting is that many more attenders than non-attenders (but note the small Ns) come from families in which the mother was the only member with college experience.

To summarize, both groups tend to come from families in which (at least) one other person went to college, with that person more likely to be a male and more likely to be a brother than a father. Although this is generally true for non-attenders, this group of students is more likely than the others to have two or more family members who attended college, with these persons being a combination of sexes, involving a combination of parent(s) and sibling(s). Attenders, on the other hand, are as equally likely as non-attenders to be from families in which at least one other person went to college--but more probably only one other person who is likely male and most likely a brother. What further distinguishes the Workshop attender group is the tendency for more of them to have mothers being the only member of the family who had been to college.

Thus these data do not support our assumptions: most accepted applicants tend not to be first-generation college-goers nor the family's first female college-goer. While they had more male than female relatives who went to college, attenders (more so than non-attenders) come from families in which a female was the only college-goer; it would be informative to know whether these mothers and sisters graduated, and whether this explains the attenders' motivation. In this connection, an examination of their advance expectations about the Workshop may be illuminating.

Workshop expectations. Knowing what the applicants expected from the Workshop might provide a clue as to why some came and some did not. All applicants were asked to explain briefly what they would like to get out of this program. Their responses were coded and tallied--each different thought was treated separately--and classified into five major categories. This discussion is based on a total of 128 responses from the 80 attenders (or 1.6 responses per attender) and 54 responses from the 48 non-attenders (an average of 1.1 responses). Following is a list of categories and the proportion of attenders' and non-attenders' responses so classified: Career Concerns (attenders 38%; non-attenders 44%); Self-Improvement (attenders 20%; non-attenders 17%); Meeting Other Women (19% vs. 17%); College Concerns (17% vs. 22%); and Decision-Making (6% vs. 0%).

For both attenders and non-attenders, learning about careers was their most frequently stated expectation, accounting for over a third of each group's responses. Almost half the responses classified as learning about careers were general rather than specific. Attenders, to a greater degree than non-attenders, were concerned with (in decreasing frequency): how to start a career and what skills are needed, careers that are good for women, information about specific jobs, career prospects, and career satisfaction. Non-attenders were equally interested only in careers for women, career prospects, and specific job information.

The second most frequently used category was self-improvement. It accounted for about one-fifth of the responses. Seven out of 10 of the attenders' responses were in terms of a desire for improved self-confidence, although there was some interest in improving language and mathematics skills. Nearly half the responses of non-attenders referred to self-confidence; the remainder involved better study habits and general statements.

For non-attenders, meeting other women was as important as self-improvement (17% of their responses occurred in each category), and they particularly wanted to meet working women. Attenders were similar in this regard (20% of the statements involved self-improvement and 19% were about meeting other women), but fewer than half their "meeting other women" responses concerned working women; they were interested in "successful/able" women and peers.

College concerns accounted for 17 percent of the attenders' responses, in contrast to 22 percent of the non-attenders. Sixty-five percent of the attenders' concerns in this area were about college life and what they could expect. Non-attenders relatively more frequently made general statements about college, although they also expressed concern with what college would be like.

A fifth category accounted for 6 percent of the attenders' responses; but it was not used by non-attenders at all. Attenders wanted help with decision-making, ranging from learning how to set goals to selecting the best from among a choice of colleges or careers. Such concerns appear to be ones that would motivate Workshop attendance, and thus may be of some importance in predicting who would attend.

In summary, the expectations of attenders and non-attenders were different. Attenders were concerned with careers--but not to the same extent as were the non-attenders. Attenders' next greatest area of concern was self-improvement. For attenders, their expectations about meeting other women were somewhat more important (i.e., frequently mentioned) than was their concern with college; the reverse was true of non-attenders. Finally, no non-attender, in contrast with several attenders, expected help in making decisions. The consistent thread running through the expectations of attenders seems to be a great degree of uncertainty; one has the feeling in reading the responses that these girls need outside support, advice, and encouragement to a much greater extent than the girls who did not attend. It may be that these needs reflect a general indecisiveness, or a negative self-image, or they may highlight a more acute understanding of the need to develop a decision-making capability. The distinction, of course, may not be important to comprehensive programs of this type.

Interest inventory results complete the composite picture of the typical girl who was invited to and attended the Workshop. Since it was administered during the program (Day 1), we have no comparable data for non-attenders; the Strong-Campbell Interest Inventory(SCII) is, however, a standardized vocational interest inventory, which allows us to compare the interests of our participants with national norms for women-in-general. Unfortunately, there is no normative data for an age-grade group more similar to our participants.

Mean scale scores are available for 81 participants on the SCII "six general occupational themes" as well as on two special scales--"Academic Orientation" and "Introversion-Extroversion." The six occupational themes are: Conventional (methodical, organized, clerical interests); Enterprising (entrepreneurial, persuasive, politcal interests); Social (helping, guiding, group-oriented interests); Artistic (dramatic, musical, self-expressive interests); Investigative (scientific, inquiring, analytical interests); and Realistic (outdoors, technical, mechanical interests). The average woman scores about 50 on each theme; 40 is a low score and 60 is considered a high score. The mean scores for our participants were: Conventional, 54; Enterprising, 49; Social, 51; Artistic, 40; Investigative, 44; and Realistic, 39. What do these scores mean? According to the SCII manual,[1] the "theme scores provide a global view of occupational orientation... high scores suggest the kind of activities [enjoyed], the [most comfortable] type of occupational environment, the kind of problems most willing [to be dealt with], and the kind of people... most appealing as co-workers." As a group, the participants scored about average or below. Their highest theme score was in Conventional, and their lowest scores were in the Realistic and Artistic areas.

If these means were scores for an individual and not a composite of a group, she would be described as having a "flat" profile--that is, displaying no definitive general patterns of interest. Flat profiles have very few high scores, and reflect undefined interests, usually resulting from restricted occupational, recreational, or educational experience.

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[1] David P. Campbell, Manual for the SVIB - SCII: Strong-Campbell Interest Inventory. California: Stanford University Press, 1977 (Second ed.).

Her (the group's) most well-developed interests best match those of office workers who prefer highly ordered activities, both verbal and numeric. Such people are said to fit well into large organizations and to be comfortable working in a well-established chain of command. They dislike physical activity and ambiguous situations, being most comfortable when they know what is expected of them. Nor are they comfortable in intense relationships with other people. According to the manual, their vocational preferences fit best in the business world and include such occupations as bank examiner, bank teller, bookkeeper, financial analyst, computer operator, and traffic manager.

This is in sharp contrast to the description for the two lowest scoring themes in this group: the Realistic type--described as rugged, practical and physically robust; and the Artistic type--who dislike structure and need room for expressing themselves.

The group introversion-extroversion score of 50 is halfway between introversion and extroversion. Females scoring around 50 include women in occupations such as language teacher, nurse, occupational therapist, art teacher, interior decorator, and excutive housekeeper. In contrast to their introversion-extroversion score, their academic orientation score of 32 is quite low. This score, according ot the SVIB-SCII manual, is a predictor of probable persistence in an academic setting. Their low score suggests that attenders are uncomfortable in academic settings and do not find intellectual exercises appealing.

The results of the interest inventory give a picture of the Workshop participants as an average group with interests not well defined, not particularly scholarly, and somewhat ordered and methodical. The most obvious hypothesis (taking into consideration these characteristics of the attenders, their educational history and aspirations) would be that their attitudes about women's roles and need for education vis-a-vis careers would tend to be more conventional than not.

In the following section where we present participants' views, it is quite obvious that, both initially and at the end of the program they felt that education and planning in preparation for work was as important for women as for men. Before examining these attitudes and their attitudes about mathematics in detail, we would like to return to the question of similarity between attenders and non-attenders.

To a great extent, the attender is similar enough to the non-attender to permit some confidence in the generalizability of the findings. The relatively insignificant differences between the two groups are, however, of value. First, the differences provide some clues for recruitment; for example, all other things being equal, an applicant who is the first person in her family to attend college may be more likely to show up for a special program than one who is not. And an applicant who is less confident about achieving her occupational objectives may be more likely to attend a workshop than a similar applicant who is more confident.

In addition, the kinds of differences noted between attenders and non-attenders may be useful in generating ideas about nontraditional women. Although neither group could be considered nontraditional, the degree to which they possess such attributes as confidence, self-image, availability of role models, and other such characteristics are, in our opinion, well worthy of fuller investigation. Our planned followup study of all Workshop applicants may shed some light on these concerns.

## Attitudes About Women, Education, and Work

A 23-item "Participant's Questionnaire" was administered to students twice--once at the beginning and again at the end of the Workshop. Although 81 students completed the pretest and 64 the posttest, the following discussion is based on the responses of 61 girls who completed both administrations. Table 10 (on the following page) shows the average pretest and posttest scores, differences and their significance (t tests), for each of the items. Students were instructed to indicate how strongly they agreed or disagreed with each.

For all items, including the few that are factual (e.g., items 3, 10, 16), there is an obviously "desirable" or expected direction of change. Even though few pre- to post- changes were significant, nearly every change is in the expected direction. Also, on some items there is little room (or need) for change because on the pretest the students already agree, or disagree, in the "desirable" way, to nearly the maximum possible extent; this is true of items 1, 4, 5, 8, 11, 13, 15, 16, 17, 19, and 23. Neither at the beginning nor at the end did they feel that a man should be hired

## TABLE 10

## Participants' Attitudes Toward Women, Equity in Education and Family Responsibilities: Comparison of Students' Pre- and Posttest Scores

| # | ITEM | Average Score[a] |  | Difference (Pre to Post) | Significance |
|---|---|---|---|---|---|
|  |  | Pretest | Posttest |  |  |
| 1 | Men are more loyal to their jobs than women | 4.0 | 4.4 | - .4 | .05 |
| 2 | If both parents work and their child gets sick, the mother not the father should stay home from work | 2.8 | 3.4 | - .6 | .01 |
| 3 | A year or two after they get married, most women stop working | 3.3 | 3.2 | + .1 | ns |
| 4 | When an equally qualified man and woman apply for the same job, the man should be hired because he is the head of a family | 4.7 | 4.5 | + .2 | ns |
| 5 | A woman who works is not as good a mother as one who stays home | 4.1 | 4.0 | + .1 | ns |
| 6 | Today one out of every three students in law school is a woman | 2.8 | 2.6 | + .2 | .10 |
| 7 | Boys prefer girls who know less than they do | 3.0 | 3.1 | - .1 | ns |
| 8 | No one would hire a man as a secretary | 4.1 | 4.2 | - .1 | ns |
| 9 | Five years after graduating from college most women won't be working | 3.7 | 4.1 | - .4 | .05 |
| 10 | Marriage is important because it gives a woman meaning in life | 3.3 | 3.5 | - .2 | ns |
| 11 | Women and men should get paid the same if they are doing the same job | 1.4 | 1.2 | + .2 | .10 |
| 12 | Most workers in this country are men | 3.0 | 3.1 | - .1 | ns |
| 13 | If a woman wants to she could drive a truck or repair cars | 1.7 | 1.4 | + .3 | ns |
| 14 | Women have to choose between having a family or having a career | 3.8 | 3.6 | + .2 | ns |
| 15 | It is just as important for a girl to get a good education as it is for a boy | 1.4 | 1.4 | 0 | ns |
| 16 | More than half of all women between 18 and 64 years old are working | 2.0 | 1.8 | + .2 | ns |
| 17 | A man's career is more important than a woman's | 4.5 | 4.6 | - .1 | ns |
| 18 | Women work to provide luxuries for their families, men work to provide necessities | 3.4 | 3.7 | - .3 | ns |
| 19 | Final decisions in a marriage should be made by the husband | 4.2 | 4.2 | 0 | ns |
| 20 | It is not a good idea to change careers once you start working | 3.7 | 4.0 | - .3 | ns |
| 21 | By the time people graduate from high school most know what career they will have | 3.1 | 3.3 | - .2 | ns |
| 22 | It is not a good idea to plan ahead because things don't turn out the way you want anyway | 3.5 | 3.7 | - .2 | .10 |
| 23 | Women should not have more education than their boyfriends or husbands | 4.3 | 4.6 | - .3 | ns |

[a] 1.0 = agree strongly; 2.0 = agree somewhat; 3.0 = can't decide; 4.0 = disagree somewhat; 5.0 = disagree strongly.

in preference to an equally qualified woman because he is head of a family (item 4); that a man's career was more important than a woman's (item 17); nor that final decisions in a marriage should be made by the husband (item 19). They also felt fairly strongly on both tests that a mother who works outside the home can be as good a mother as one who stays at home (item 5).

The most significant shift was in the students' response to an item (item 2) indicative of the division of family responsibility: initially, the girls tended toward agreeing that it was the working mother's responsibility, not the working father's, to stay home with a sick child, but at the end they tended to feel more strongly that it is not.

Although generally not statistically significant, there is some suggestion that the participants' views shifted with regard to how women feel about their careers. By the end of the Workshop, they felt more strongly that men are not more loyal to their jobs than women (item 1), and became even more certain that males and females who perform the same job should receive the same pay (item 11), and that women can do what they choose to do (item 13). Apparently, they also acquired some more accurate information about women in the labor force (item 6), although there was no pre- to post- difference in their responses about how long married women work (item 3), or how many women and of what ages are working (items 12 and 16).

With respect to the importance of education for females, as a group they remained in the middle (undecided) as to whether boys prefer girls who know less than they do (item 7), but there was also no change in how they felt about equal education: on both tests they disagreed very strongly that women should have less (or no more) education than their boyfriends or husbands (item 23), and agreed strongly that both boys and girls should have a good education (item 15).

Attitudes about career planning were also interesting. These girls tended initially to accept the idea that career changes are possible (item 20), and did so somewhat more by the end of the Workshop. Results were similar, although less marked, for item 22: they accepted, and increased in acceptance of, the need for planning even if the plan doesn't turn out the way one wants. As a group, at the beginning they didn't know whether most graduating high school students have chosen their careers (item 21), and in the posttest there was only a small shift toward recognizing that the statement as presented is probably untrue.

Overall, there were few large, dramatic changes from the beginning to the end of the program, primarily because their initial attitudes toward many items were already strong and at the desirable end of the scale. There were, however, very many small shifts, and almost all in the desired direction; even on items where students started by agreeing or disagreeing initially, their feelings tended to become stronger. There was, of course, room for improvement. For example, students tended to remain uncertain or undecided about many things--particularly about work and the married woman--but certain about the need for adequate educational preparation for boys and girls. There was some shift with regard to the importance of careers and career planning for women but, as suggested above, it seems to have had the greatest impact on views toward the unmarried or not yet married female. While the Workshop presented little about how women with family and career responsibilities deal with these multiple demands, part of the reason may also be the inability of young women to project any possible difficulties that far into the future.

## Attitudes Toward Mathematics

One of the Workshop's major goals was to help students cope with their problems in math. We made the following assumptions: (1) that our target population was anxious about mathematics; (2) that they would demonstrate this anxiety by avoiding math courses as much as possible; and (3) that inadequate preparation in math--in terms of both skills and attitudes--decreases the likelihood that women will consider nontraditional occupations, many of which require some college level math. As we saw earlier, a large proportion of participants (as well as non-attendees) did not like math.

We suspect that not liking math is not identical with math anxiety, even though each can lead to avoiding mathematics. Some of the theory underlying the concept of math anxiety has to do with stereotypes; for example, the belief that math is masculine, that math is easier for most other people, that boys are better in math than girls, and so on are stereotypes that females incorporate into their self-image. In order to explore attitudes toward mathematics that may be more revealing than likes or dislikes, we administered the "Participant's Opinion Survey" at the beginning of Day 3 and again as a post-measure on the morning of Day 4. This instrument has the same agree-disagree format as the previous one ("Participant's Questionnaire," Table 10) dealing with women and work.

The "Participant's Opinion Survey" contained 25 items, the first 12 of which were "math myths" adapted with permission from Mind Over Math©. Table 11 (on the following page) lists the items and shows the pretest and posttest means for the 57 students who completed both administrations. The difference scores (pretest mean minus posttest mean) were tested for statistical significance (t tests). These results involve the same considerations and cautions as those mentioned in connection with Table 10. Note that here the interval between the two tests was only one day, so there was even less time for any attitude changes to develop and to be reflected in the student's responses. Moreover, unlike attitudes toward women and work, the math intervention was of very short duration--one half-day session. Just as was true of the women and work items, here too the desirable direction of change on almost all items is to shift toward greater disagreement (closer to 5.0--a negative difference).

Looking first at the math myths (items 1 to 12), we see that on every one of the items, on the posttest the students disagreed more than on the pretest; and nearly all of these shifts were significant. But only on the sex-related item (item 1) did they initially disagree fairly strongly. So, while their responses moved in the desired direction, their initial tendency to agree with these math myths indicates that they have many false impressions about how math is done, and that considerably more change is still needed before the myths are completely dispelled.

On the remaining items (13 to 25), the sex-related items follow the same pattern as the sex-related item 1: even initially these girls disagree quite strongly that females are inferior to males with respect to math ability and the need for training in math, and they tend to disagree more strongly on the posttest. Again, however, further attitudinal changes would be desirable.

## TABLE 11

## Participants' Attitudes Toward Mathematics: Comparison of Students' Pre- and Posttest Scores

| # | ITEM[a] | Average Score[b] |  | Difference (Pre to Post) | Significance |
|---|---|---|---|---|---|
|  |  | Pretest | Posttest |  |  |
| 1 | Men are better in math than women | 4.1 | 4.7 | - .6 | .01 |
| 2 | Math is not creative | 3.5 | 3.6 | - .1 | ns |
| 3 | Math requires logic, not intuition | 2.6 | 3.0 | - .4 | .05 |
| 4 | In doing math you must always know how you got the answer | 1.7 | 2.4 | - .7 | .01 |
| 5 | There is one best way to do a math problem | 3.0 | 4.0 | -1.0 | .01 |
| 6 | In math, it's always important to get the answer exactly right | 1.8 | 2.3 | - .5 | .05 |
| 7 | It's bad to count on your fingers | 3.4 | 4.2 | - .8 | .01 |
| 8 | Mathematicians do problems quickly, in their heads | 2.4 | 3.0 | - .6 | .01 |
| 9 | Math requires a good memory | 1.9 | 2.3 | - .4 | .05 |
| 10 | Math is done by working intensely until the problem is solved | 2.0 | 2.5 | - .5 | .01 |
| 11 | Some people have a "math mind" and some don't | 2.2 | 2.8 | - .6 | .01 |
| 12 | There is a magic key to doing math | 3.1 | 3.3 | - .2 | ns |
| 13 | It's more important for boys to do well in math than for girls | 4.6 | 4.5 | + .1 | ns |
| 14 | My mind goes blank when I have to take a math test | 3.0 | 2.8 | + .2 | ns |
| 15 | Teachers are more concerned about boys doing well in math than girls | 4.3 | 4.5 | - .2 | ns |
| 16 | Knowing math is not necessary for most people's lives | 3.8 | 4.1 | - .3 | ns |
| 17 | Boys think girls who do well in math are not feminine | 4.2 | 4.0 | + .2 | ns |
| 18 | Math courses scare me | 3.0 | 3.0 | 0 | ns |
| 19 | Most secretaries do some math every day | 2.4 | 2.0 | + .4 | ns |
| 20 | Most girls don't like to admit it if they are good in math | 3.7 | 3.8 | - .1 | ns |
| 21 | Only a certain type of person does well in math | 4.0 | 4.3 | - .3 | ns |
| 22 | Math is important for the work most people do | 2.0 | 1.8 | + .2 | ns |
| 23 | Math is a subject girls usually don't do well in | 4.0 | 4.3 | - .3 | .01 |
| 24 | Most people never use math after they finish school | 4.0 | 4.2 | - .2 | ns |
| 25 | It's hard to imagine a woman being an accountant | 4.7 | 4.7 | 0 | ns |

[a] Some items adapted, with permission, from Mind Over Math©.

[b] 1.0 = agree strongly; 2.0 = agree somewhat; 3.0 = can't decide; 4.0 = disagree somewhat; 5.0 = disagree strongly. The higher the score, the greater the disagreement.

It is interesting that (returning to items 1 to 12) students' beliefs about math as a process underwent the more significant changes. Apparently, reasons for disbelieving the myths were effectively communicated in the 3 to 4 hour session, and suggest that with greater exposure to this new way of thinking about math there may be even greater gains for participants.

In summary, the results of our relatively brief math intervention seem quite impressive in terms of the measure of attitude change, especially in terms of attitudes about how math is done. The initial direction as well as the changes in the sex-related items, suggest that the students' have adopted--at least superficially--the increasingly pervasive concepts of women's equity. The real test is longer-term: has the intervention occurred too late in their educational careers to affect their behavior? Or have they, at long-term followup, modified their career objectives to reflect an increased interest in math-related occupations?

## Student Participant Reactions

The final section deals with the reactions of participants to the math session and to the other activities and people that comprised the four-day program. We have also included suggestions and comments from the group leaders, particularly those that help explain the impact of the experience.

At the conclusion of Day 2 and again toward the end of Day 4 students were asked to complete a rating form describing, respectively, their reactions to each half of the Workshop. While the "Workshop Rating Form" administered on the second day focused exclusively on the March sessions, the "End of Workshop Rating Form" covered some material from all four days.

Days 1 and 2. A total of 76 girls completed the "Workshop Rating Form," with almost all responding to each question. The first series of questions was about the usefulness of the various sessions and activities, to which respondents rated each as "very," "somewhat," or "not very useful." Of the 8 activities listed, the sessions dealing with interests (which consisted primarily of completing the SCII) and the one in which students met and talked with college students were rated the most useful by the largest proportion of participants. Next in order of usefulness were the following activities: values; "feeling good about myself"; and the large panel presentation by the working women. Relatively lower in usefulness, although from 60 of 76 percent of the students rated each as very useful (and less than 2% not very useful), were meeting with the working women in small groups; talking about college requirements (note that this was part of the same session to which the college students were invited); and the activity dealing with skills. Despite the comparatively low rating, 61 percent rated skills assessment as a very useful activity.

The rating form also asked the girls to indicate how much they learned about 8 different content areas. The topic about which most respondents (91%) said they "learned a lot" was how college differs from high school. In contrast, the topic about which only half learned a lot (and 43% "learned a little") was how to combine working life with family life. These extremes fit in fairly well with the ratings of usefulness discussed above: namely, talking with college students was one of the most useful activities, from which they learned a lot about how high school and college differed. At the other end, most of the emphasis on combining work and other family responsibilities was to grow out of the small-group discussion with the working women--an activity that the largest proportion of participants found relatively lower in usefulness.

In terms of how much they learned, participants said they learned a lot about what college life is like, followed in order by: new career possibilities; college and course requirements; self; what it's like to be a working woman; careers in which they had expressed interest; and new career possibilities.

Since this group of girls wanted very much to interact with working women in order to learn about careers, what these ratings may be reflecting is a relative disappointment vis-a-vis initial expectations.

Their reactions suggest that Day 1 was, overall, more successful than Day 2--with the exception of their interaction with the college students. This interpretation is generally supported by their open-ended responses when they were asked what they liked best and what they did not like about the (first half of the) program. The participants were more vocal about what they liked (average number of comments per student, 1.7) than about what they did not like (average number of comments per student, 0.8). Moreover, of the total of 63 scorable comments they made in response to the question about what they did not like, 24 (38%) were about things they liked; that is, in response they said, "I liked everything"; or "there was nothing I didn't like"; "the program was too short"; and "it should be open to juniors." A very large proportion of the negative comments had to do with the organization: for example, the length of the day (22%), the type of lunch and refreshments (17%), the feeling that some students did not talk enough in the small groups (3%), and the videotaping (2%). Very few comments were substantive: 8 can be so considered and 5 of these comments had to do with not learning enough about specific careers--those in which the participants were initially interested; the other three comments were critical about the session(s) with the working women. Unfortunately, these were too vaguely stated to be of much use.

They were much more to the point in telling us what they liked best. The single most frequent response category was obtaining new information (34% of the total number of comments) about college and careers, including new curricula and new career opportunities. They also liked meeting other people (26% of the comments), particularly the working women and the college students. The small-group structure was one of the favored aspects (21%), largely because they loved the counselors and there was great opportunity and freedom to express themselves and ask questions. Approximately 10 percent of the comments, which were classified as increased self-understanding, emphasized learning how to assess skills and values, and make decisions. Several statements (6%) had to do with Workshop organization--the students noticed and were particularly impressed with how smoothly things ran (including the videotaping) and how friendly and helpful the people were. Almost every girl (97%) rated the Workshop "very worthwhile" and without exception all would recommend it to a friend.

Days 3 and 4. Since fewer girls were present on the last day, we have completed "End of Workshop Rating Forms" for 62 students, not including the 3 newcomers who also filled it out. The format of this instrument was similar to that described above in that it listed Day 3 and 4 activities and/or sessions and asked students to rate their usefulness and indicate how much they learned. It also included space for them to discuss what they liked best and least about the four days.

Interestingly, despite the drama inherent in the Day 4 reunion, more participants rated planning their own career as the most useful of five activities (79%); followed by the reunion (68%). For the group, discussing their interest inventory results was almost as useful as the reunion (61%

very useful), and more useful to a greater proportion of students than was the math activity (48%) or the decisions they made based on solving "Cindy's problem" (50%). Looking at the reverse, that is, the proportion of students who rated an activity as "not very useful," the same order obtains: 10 percent of the respondents felt that the session devoted to mathematics was not useful, in contrast to no participant rating planning her career that way. Their reactions to the math exercises and to the interest inventory are somewhat surprising, given the changed (i.e., improved) attitude toward math on the one hand and the counselors' and observers' impressions about the excitement and interest generated by the reunion and apparent in (some of) the math groups. As we will see below, no student spoke negatively about the math session, which suggests that although they tend not to find it useful it was not singled out for adverse comment.

When asked, however, how much they learned about each of 6 topics from all four days, a smaller proportion of participants (44%) felt they "learned a lot" about math than about any of the other 5 topics listed. A greater proportion of participants " learned a lot" about skills, values, and interests (81%), and about college and what to expect (81%) than about what it's like to be a working woman (79%), future planning (77%), and new career possibilities (73%). These ratings are in agreement with those obtained at the end of Day 2.

The final set of questions asked whether the students had or had not yet, between the March and April sessions, read or engaged in any of a series of activities. In order of the proportion who indicated they had, most (90%) had talked about the Workshop to their parents or relatives; and more than 80 percent had read the autobiographies of the counselors (87%), college students (87%), and working women (82%). Somewhat fewer had already discussed the Workshop with friends or classmates (81%), but relatively very few had discussed it with their high school counselor or advisor (55%). Almost 80 percent read the materials in their looseleaf books (79%), and slightly more than two-thirds of the respondents looked up things in which they were interested (69%) or reviewed the exercises they had completed in the Workshop (68%). Of those who had not yet done these things, most indicated that they planned to do so in the future; the only significant exception was the fairly large proportion who did not intend to discuss the Workshop with high school staff.

When asked what they liked least about the entire program, there were relatively few responses--a total of 47 or 0.8 per respondent. Of these, however, 40 percent of the comments were positive; that is, the student said there was nothing she didn't like and that the program was too short. An additional 23 percent of the negative comments were about lunch, the length of the day (15%), or the specific dates selected and the fact that it was limited to females (6%). Again, few comments were substantive: one pertained to the student not receiving sufficient information about how to get one's first job, another pointing out that some discussions were not necessary, one about too many speeches, and two comments criticizing the number of forms--written exercises.

As could be expected, for only 2 respondents were the written exercises among the best liked parts of the Workshop. Respondents, in general, made an average of twice as many postivie as negative comments. The small groups and the group leaders were voted the best part, accounting for 21 percent of the comments; if we include in this category statements about meeting people (unspecified) and making friends, these account for a total of 33 percent of the comments. Girls tended also to like learning about themselves, with particular emphasis on what to expect in the future (16%). They also enjoyed learning about careers (10%) and college (6%), through their interaction with working and college women (6%). A substantial number of comments (6%) were directed to IRDOE staff, complimenting them for their interest in and concern with the students. The remaining remarks about what the students liked best covered planning and decision-making (3%), the videotaping (2%), math (1%), food (1%), and the materials they were given to read (1%).

As implied earlier, student reactions as measured by their ratings did not always match the impressions of counselors or project staff. In particular there was an apparent discrepancy between students' assessment of the math and working women sessions and the counselors' observations of these sessions, and some difference with respect to the interest inventory. Keep in mind, however, that the written feedback we received from the students was highly positive--generally at least half and in most instances as many as 60 percent of them rating each item as favorably as the scale allowed--and, lower ratings are relative.

In large part, we feel that the students' rating of both the math session and the morning spent with the working women reflects the scheduling of these activities as much as the content. That is, both sessions were more obtrusive than ideally desired: after spending all of Day 1 in carefully designed small groups with the entire focus on the individual participant, Day 2 began with a panel presentation followed by a regrouping of students. Similarly, the first activity after the month's break--when it can be assumed that the students were most anxious to see one another and the group leader--was the math session that again began with a whole-group presentation followed by another subdividing of participants around an unknown adult--the mathematician.

There were mixed observations concerning these sessions: it appeared that some students/groups reacted extremely well; others seemed less excited, but involved nonetheless. In terms of the math activity, counselors reported a "fair level of interest," "a definite effort to participate--which was marked by longer silences and more fatigue" than usual. All group leaders said that, in their opinion, students exhibited a greater dislike of math than attitudes that could be termed "anxious." They felt that too much time was spent on math and agreed that it was not sufficiently well-integrated into the program. Group leaders' reports of the interaction between students and working women was positive, although there was less consensus than with respect to math. The difference may be because students expected more from the working women. One counselor reported that the students "absorbed information like a sponge," while another said her students reported the small-group session with a particular woman as merely "interesting."

The counselors unanimously felt that the students were most in need of information about colleges and careers and effective decision-making strategies. They felt that participants benefited most from the exercises that fostered this kind of understanding. Improved self-understanding and self-appreciation were among the more outstanding outcomes, voiced in many different ways by many different students. Some were struck by the realization that things they had done in their lives, and had never thought about, reflected real skills and abilities on which they could build. Most were impressed by, and very responsive to, the attention paid them; they told us repeatedly how pleased they were by the effort and work that had gone into a program for them. We continually heard variations of how nice it was to be treated as an adult.

In terms of career plans, group leaders reported that, in general, there were few changes--but the ones that occurred were promising. For example, participants were greatly impressed by the diversity of available occupational alternatives and by the emphasis that was placed on flexibility in planning; these are attitudes that may set the stage for future actions. One participant told her group that she was planning to be a nurse; after completing the skills and values self-assessment and reviewing the results of her interest inventory, it was evident that a career in business had great appeal to her. She proceeded to explain to the group that she had always wanted to be a businesswoman, but that she had selected a career in nursing "because that is what everyone" told her she should do.

Similarly, another student was interested in becoming an engineering technologist--but had been discouraged from pursuing this career. The leader reported that this student blossomed as a result of the group's supportive comments "because she had not previously received this kind of positive reaction from others." Counselors felt that even more time could be devoted to self-exploration.

One interesting observation is the apparent isolation of these students. The Workshop allowed them to share--often for the first time--fears about college and about going to work. For many, the opportunity to find out that other people had the same hesitancies and problems gave them the support necessary to pursue their occupational goals. They were hungry for personal interaction and for information, despite their assumed resistence to "read so much" and "write so much."

They continually asked for extra copies of Workshop materials to give to friends and to take back to their high schools. Two high school advisors called to tell us how excited a student was. One wrote that her student "was clearly inspired by all the people she met and was very happy to have made new friends whom she looked forward to seeing in college."

Strong friendships were formed among students and between students and group leaders. Several groups made definite plans to meet in September at the college, with the aim of forming a club. Other friendships were of a more personal, less formal nature--telephone numbers and addresses were exchanged by almost all students with promises to "keep in touch."

The level of emotional interaction was not only high but pervasive as well: it affected staff and counselors.

The leaders felt that the Workshop was a valuable learning experience for them. They all indicated that, in addition to learning how to run an effective program, they acquired or sharpened their skills in dealing with small groups. Moreover, they learned more about the students, and from a new perspective. One said, "I became more aware of students' needs and will be better prepared to create campus-based programs for incoming students." Another leader reported that the students were so "alive, enthusiastic, warm, resilient, and motivated" that "we at the colleges have to do more about channeling this potential."

One leader summarized the Workshop as "a big plus because students were able to spend time thinking about themselves--their interests, skills, and values--in a positive, supportive setting. The most important outcome to me was their realization that planning can be rewarding."

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In the Spring of 1979, the Institute for Research and Development in Occupational Education (IRDOE) conducted a career planning workshop program for female 12th grade students graduating from New York City high schools who intended to continue their schooling in a CUNY community college. One of the major intents of the Workshop, "from SENIOR to FRESHMAN," was to assist the graduates in the transition from high school to college, with particular emphasis on motivating them to consider nontraditional courses of study. The Workshop was the direct outgrowth of a program previously planned cooperatively by IRDOE, a CUNY two-year college, and three New York City high schools; but as it was implemented in 1979, it also represented the input of the New York State Education Department (Bureau of Grants Administration), and of selected strategies suggested by the literature on nontraditional occupations.

By adapting and including a diverse set of techniques, IRDOE hoped to increase participants' interest in career programs that are male-dominated, improve participants' decision-making capability, and actively involve them in their own career planning. As it operated, the four full-day Workshop incorporated small- and large-group sessions in which participants interacted with 39 adults, in a carefully structured, well organized, and highly supportive environment. Using written and oral exercises, lectures and discussions, and games and role-playing, all participants underwent a similar experience that, overall, was judged effective in facilitating self-understanding and appreciation of educational and vocational options.

A great amount of staff effort went into resolving organizational and structural concerns, a fact which was appreciated by the students and adult presenters alike. Some of these issues involved where to hold the Workshop (CUNY's Graduate School and University Center was deemed most accessible and, moreover, offered the most complete back-up facilities such as meeting rooms, food and audiovisual services); how to design the activities so they were varied, logically sequenced, and both self-contained and interrelated; and how to introduce one-time presenters while maintaining group cohesiveness.

The Workshop took place on March 14 and 15 and on April 16 and 17, 1979. Although the schedule with the month intervening between the second day (March 15) and the third day (April 16) was not ideal, it reflected practical considerations: the March sessions took place during the regular school term and the April dates fell during a vacation period. As it happened, on the one hand we were reluctant to ask principals to excuse students from attending classes for more than two days; on the other hand, during the 1979 school Spring recess there was not a sufficient number of consecutive days that would not overlap a major religious observance. The compromise, to split the program in half, was not without its benefits, although it disrupted the best flow from one activity to another. The attrition in attendance between halves was not unexpected and the reaons, which involved students working during vacations, suggest that had the four-day series taken place during a school recess attendance might have been no higher.

The proportion of attenders was somewhat less than anticipated, but greater than found in similar programs. As it was, a total of 84 different girls attended on at least one of the four days and most of them came on all four. To meet the targeted quota of 100, we had invited 128 of the more than 300 applicants for the Workshop. Publicity and recruitment took place in all coeducational public high schools and in some nonpublic and community-run schools as well. Recruitment, however, focused on those schools from which, in the past, the largest number of female students went to a community college. From the information on the application form, which was completed by all candidates, project staff was able to select women who best met the criteria established for participation and to compare the accepted applicants who attended (attenders) with the accepted applicants who did not attend (non-attenders). The data we required of all applicants also allowed us to revise the program's structure and content to better meet their stated individual needs.

Some candidates were not accepted for the Workshop because they did not meet the major criteria; there were a few who were neither female nor in the 12th grade, but the largest number of those rejected were either not interested in attending a community college or were not likely to be allocated to a CUNY one. (Because of the way CUNY allocates the incoming freshman class, unless otherwise specified, the high achieving students tend to go to a four-year college unit.) College preference, career interest, and highest degree desired were the measures used to define likelihood of attending a community college.

In terms of the second major criterion--interest in or potential for enrolling in a nontraditional program of study--the selection process was somewhat more subjective. Since very few students indicated an intent to pursue a nontraditional vocation, we selected those who tended to be less certain of their career goals. As it was, more applicants met these criteria (or met them equally well) than we could accommodate, so we gave preference on the following bases: we tried to include representatives of as many different high schools as possible, and as many different preferred community colleges as possible. Had we not considered high schools and colleges in this way, the composition of the participants would have been vastly different from the composition at which we arrived.

The total accepted group of 128 students represented 44 different New York City public high schools, was ethnically representative of the racial distribution of the school population, and was interested in (7 of the 9) two-year CUNY colleges. Not unexpectedly, 98 percent of the accepted applicants, as compared with 41 percent of the rejected applicants, expressed a preference for a CUNY community college. A related indication was that 19 percent of those rejected as compared with 46 percent of those accepted, desired no more than an associate degree. Most of the remainder wanted to attain a baccalaureate degree, suggesting that even among those who wanted a two-year college, plans were in mind for education beyond that level.

Most applicants listed traditional careers as their goal, and two-thirds of the accepted group wanted careers in health, business, or secretarial studies in contrast to slightly less than half the rejected applicants. Even among the accepted girls who wanted careers that were classified as less traditional, most sought the more female subspecialties or were comparatively more vague than the rejected group.

Thus, in general, while we were effective in selecting a population that was likely to attend a community college, we were much less effective in attracting women with nontraditional career aspirations who were likely to attend a community college. That this was not a chance occurrence is supported by the fact that, when recruiting adult working women for the program, we had great difficulty in locating two-year college graduates in nontraditional fields.

Did the attenders differ from the non-attenders in crucial ways? This is an important question that bears on the generalizability of the findings and provides clues important to the conduct of similar programs in the future. The answer is somewhat equivocal. To begin with, there was no difference in ethnicity, nor were non-attenders from particular high schools or boroughs. In terms of wanting to attend a community college, there was also very little difference. All attenders and 96 percent of non-attenders listed a community college as one of their choices, but non-attenders showed a slightly greater preference for four-year colleges than did attenders. The difference in educational aspiration--estimated by highest degree desired--was fairly sizable, with a greater proportion of attenders than non-attenders wanting schooling beyond the associate level. This suggests that the attenders were a more highly motivated group, which of course is one of the very basic reasons for attending a program at all. The apparent incongruity between their aspirations and their preference for a two-year college may reflect a realistic assessment of their educational performance or greater uncertainty about their ability, or simply be an expression of low academic orientation.

Again, although the differences are small, the career choices of attenders tended to be more diverse than those of non-attenders; but both were equally traditional. When looking at certainty, however, we saw that attenders were less certain they would be able to attain their first objective than non-attenders. Despite the fact that very few students listed a math or science course as one of their best or most enjoyed subjects (and the fact that both groups tended to like and dislike the identical subjects), a smaller proportion of attenders like Regents science courses and a smaller proportion were taking a science course of any type in their senior year. Irrespective of attender status, smaller proportions of students were enrolled in science than in math courses. Again, comparatively fewer attenders than non-attenders were enrolled in a math course.

Most accepted applicants were not the first person in their immediate family to attend college, but as hypothesized, attenders were slightly less likely than non-attenders to have more than one college-goer in the family; that is, attenders were more likely to be from families in which only one relation went to college. For both attenders and non-attenders, the relative who went to college was probably male and more likely a brother than a father. Although the Ns are small, there was more of a probability that attenders--in contrast with non-attenders--were from families in which the mother was the only person who had gone to college. This result, perhaps, accounts for some differences in advance expectations about the Workshop. Both groups were most concerned with careers, but attenders less so than non-attenders. Attenders were more concerned with self-improvement and decision-making and planning. This, together with their relatively greater feeling of uncertainty, suggests that one of the important determinants of attendance may be a more negative self-image that may or may not reflect real inner conflict.

The "from SENIOR to FRESHMAN" Workshop took place on March 14 and 15 and April 16 and 17, 1979. Attendance was better on each of the second days (Days 2 and 4) than on the first (Days 1 and 3), with some attrition from Day 1 to Day 4.

The first day, Day 1, was devoted to setting the atmosphere and establishing cohesive small groups. The groups were organized on the basis of the specific CUNY community college in which participants expressed interest, and unless otherwise specified, all small-group work involved the same division of students. We had 10 groups: one each for the Bronx, Borough of Manhattan, and Kingsborough Community Colleges, and the College of Staten Island. Two groups each were formed for LaGuardia, New York City, and Queensborough Community Colleges because of the large number of applicants who listed these as one of their three preferred schools. An 11th group, for 3 newcomers, was established for the April dates.

Each small group was led by a woman from the college, usually an experienced counselor with extensive background in individual and group guidance. Most were already familiar with the techniques we employed, thus requiring little formal training. In addition to their responsibility for conducting the small-group sessions, they also served as role models for the students. As a group, they differed in age, ethnicity, interests, marital and family relationships, and in their style of interaction with students.

As can be seen below, Day 1 activities, with the exception of the Welcome, all took place in small groups of no more than 15 students. The focus was on self-understanding, and the group leaders guided the participants through a series of skills, values, and interest exercises. Observation and more formal ratings indicated that the activities were adequate; there were suggestions for improvement as well as suggested alternative exercises, but they apparently achieved their purpose, and the students began to develop new ways of thinking about themselves.

Day 1 - March 14, 1979, Summary: ME, MYSELF, AND I

Welcome (Large group); Project Director and Moderator
(A.M., ½ hour)

Feeling Good, Introductory (Small groups) Exercise; Group leaders
(A.M., 2½ hours)

Self-Awareness (Small groups); Group leaders
(P.M., 3 hours)

- assessing past accomplishments
- skills assessment
- values assessment
- interest inventory

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Day 2 (March 15, 1979) was the most organizationally complex session; it involved one-time presentations by 9 working women and 11 female college students. The emphasis was on increased understanding of occupations and on college life and college requirements. The session devoted to college was rated more highly by students than their interaction with the working women, but this may be because the college students were closer in age, and more like the participants in other ways as well; or it could be because the college session took place in the by-now familiar small groups, while the participants were subdivided on a different basis for the morning session.

We experienced difficulty in recruiting an ideal panel of women working in nontraditional occupations, and compromised in an attempt to respond to student interest in more traditionally female careers. Students valued their interaction with these women but, although they learned about specific careers, they were not able to identify with the problems women (especially older, married women) face in integrating their professional and personal lifestyle goals. As a group, the students were much more in tune with and ready to take on the problems associated with going to college.

Day 2 - March 15, 1979, Summary: MY COLLEGE, MY CAREER

Women's World of Work (Large group); Working Women Panel (A.M., 2 hours)

Career Awareness (Small groups); Group leaders and working women (A.M., 2 one-hour sessions)

- new careers
- career preparation
- job skills
- lifestyles of women who work

The Community College (Small groups); Group leaders and community college students (P.M., 2 hours)

- college requirements
- college procedures
- educational opportunities
- comparing high school and college

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When the students met for Day 3, a month had elapsed. The intent of Day 3 was to continue the exploration of careers and prerequisite training, particularly math. The day started out with a presentation by a mathematician who talked about people's common experiences with math. Then, in small groups, led jointly by the counselor and a mathematician, the students explored their own math experiences and anxieties; practiced some new approaches to doing math; and reviewed math as a skill necessary (to a greater or lesser extent) in almost every career. The afternoon of Day 3 centered on gathering career information, starting with learning about the occupations suggested by the results of the interest inventory.

Despite the fact that there was a significant change in attitudes toward math--especially in how they viewed math as a process--participants tended to rate the math session less highly than other activities. They also exhibited little behavior related to math that could be characterized as "anxious," although they reported that math was not a subject they enjoyed or in which they did well.

The participants responded extremely positively to the large amount of career information we provided. Some of the material was obtained from associations, while some was written by the staff. Students' first reaction to the materials "so much to read!", rapidly vanished in their hunger for more information. Most students said they read the materials, which, besides describing occupations, included autobiographies of the 39 adult women who presented; fact sheets about women in the labor force; the use of math in everyday situations, and in common as well as less traditional careers; and other miscellaneous things, including a guide to career planning and more detailed information about the Workshop program.

### Day 3 - April 16, 1979, Summary: MATH & OTHER CAREER INTERESTS, REVISITED

Welcome Back (Large group); Moderator
(A.M., ½ hour)

Mind Over Math© (Large group); Mathematician
(A.M., ½ hour)

Math Groups (small groups); Group leaders and Mathematicians
(A.M., 2 hours)

- feelings about math
- past experiences with math
- new approaches to math

Career Information (Small groups); Group leaders
(P.M. 2½ hours)

- reviewing interest inventory results
- new occupations
- gathering career information

Day 4 attempted to put together what students had learned about themselves and about the requirements of the external world. Career planning began and included some exercises in setting goals (The Reunion), learning how to achieve the goals in smaller stages, and learning how to resolve conflicts and make choices. Participants practiced decision-making skills, summarizing by defining some objectives they wanted to accomplish before the start of college. The Workshop program ended with a graduation ceremony, complete with a keynote speaker and certificates for participants.

### Day 4 - April 17, 1979, Summary: MY CHOICE, MY FUTURE

The Reunion (Small groups); Group leaders
(A.M., 2 hours)

- dreams and objectives
- long- and short-range goals

Career Planning (Small groups); Group leaders
(A.M., 1 hour)

- steps and sequences
- decision-making
- my personal plan

Career Decision-Making (Small groups); Group leaders
(P.M., 1½ hours)

- choice and conflict
- future problems

Graduation (Large group)
(P.M., 1½ hours)

- Keynote speaker
- Certificiates of Completion

Reaction to the program was overwhelmingly positive. The leaders of the small-group sessions felt that the students benefited, and they themselves learned new skills and developed new ideas that they could put to use on their respective campuses. They appreciated our efforts in implementing a well-organized program, as did the students and other guest presenters. The observers and group leaders did not perceive the introduction of the 8 mathematicians, the 11 college students, and the 9 working women (each group of whom was used for one-half day) as obtrusive, although the scheduling of their presentations may have disrupted the flow of the Workshop in subtle ways. For example, despite highly positive student ratings of all sessions, the two half-days involving the working women and the mathematicians were rated comparatively less highly. Whether this resulted from the scheduling of these activities or was a reflection of the needs of students vis-a-vis the content is indeterminate.

Students did, in fact, change in how they perceived mathematics, especially in their views of how math is done. This was one of the primary thrusts of the 3 to 4 hour math activity session, and these results are very encouraging although there was still room for improvement. The students initially believed, and felt much more strongly at the end, that males and females have equal ability to do mathematics, probably because more of them adopted the view that math does not require a special mind or way of thinking. On the posttest, more students entertained the concept that different styles and approaches can be brought to solving math problems. From the student reactions it is not possible to say that they do or do not exhibit the symptoms of math anxiety as described in the literature (and on the 2 "anxious" items, 14 and 18, they remain undecided), but only about half were enrolled in math courses as 12th graders (and of these, few were in academic math courses), thereby lending some weight to the presence of math avoidance behavior. It is, however, as possible that they were avoiding math as a result of dislike or as a result of their general non-academic orientation as it was that they were avoiding it as a result of anxiety. Irrespective of the antecedent causes, the participants will not be entering college with the math background prerequisite for the nontraditional science and math-based technologies. But since the Workshop's math component did result in significant changes in attitudes and beliefs, it probably should be retained and perhaps expanded.

With respect to their general attitudes toward women, work, and education, the students were not as conservative as we had anticipated they might be. On most items their initial attitudes were in the desired direction and for many, strongly so. Their pre- to posttest scores tended not to change dramatically. They started out indicating that a woman's career was as important as a man's, but by the end of the Workshop they felt more strongly about that and about men and women's loyalty to their job, and that in a marriage both partners should share responsibility for decisions and action.

Reflecting the low priority given to factual information about women in the work force and how married women integrate their multiple roles, the students did not demonstrate a dramatic increase in information about working women nor a good grasp of the place work occupies in a married woman's life. As a matter of fact, the Workshop was more effective in modifying beliefs and knowledge about the target population age group than it was with respect to the after-college-graduation age group. The results we obtained suggest that high school seniors do not adequately understand the often complex demands of the adult world. Although somewhat more attention might be paid to this, it is our opinion--shared by the group leaders--that since the program was effective in creating the foundation for planning and decision-making, the resolution of these adult conflicts might best be delayed till participants are closer to the personal experience.

Overall, the "from SENIOR to FRESHMAN: Career Paths Workshop for Women Students" program effectively met most of its objectives and needs of participants. The women who led groups valued the experience, reporting that they found it refreshing and challenging. The students began to learn to appreciate themselves in new ways, particularly in terms that could be related to career choice. They received occupational information, exposure to a variety of occupations, including some that are nontraditional for women; learned new planning skills applicable to any decision-making stiuation; and interacted with a large number of adults, including mathematicians, and college students. The experience for all concerned was enjoyable and stimulating and, with some modification, should be repeated.

Some thought should be given to de-emphasizing the use of paper and pencil exercises. The leaders reported that many students expressed dislike for what they perceived as too much writing, although all students completed all exercises and few noted complaints about this on the feedback rating forms. Despite the authors' personal bias that writing skills should be practiced, and the fact that little writing--it was mostly checking--was actually required, future programs might profit by the redesign of these activities. In particular, alternative ways of completing an exercise (including some that the leaders tried) should be built into the script and other options made available. Since the complaints about writing occurred mostly on the first day, it might be possible to make first-day exercises more active, but to retain--or even increase--the amount of writing required as the program unfolds.

The amount of time allotted to particular content units is critical and may need to be reassessed for each new group of students. Based on our experience, students need and want to spend at least one-half day on skills, values, and interest assessment; a half-day on researching occupations; and another half-day learning about college. Once the basic Workshop plan has been worked out, decreasing or increasing the time spent on various components is relatively easy. In our opinion, four full-days is the minimal duration--although the sequence of sessions might be reordered.

A major asset of the program was the use of guest presenters. This component might be expanded. The scheduling of the guests, however, should be reconsidered in light of the interval between meetings. As originally intended, this program was designed for three full consecutive days, followed by one full-day session about two weeks later. We believe that this would have been a better schedule, but other variations are also possible.

With respect to the selection of guest presenters, students interact more productively with women closer to their age and more similar in background. This is not to imply that the older woman is less highly regarded but, from the students' viewpoint, that woman's world appears too remote and is not convincing. All other things being equal, it might be desirable to provide a closer match between participant and presenter in this respect.

The mathematics component needs to be reconsidered, at least with respect to when it is scheduled and how it is integrated into the total experience. It was quite clear that it resulted in changed attitudes toward mathematics and, if it results in changed behavior, it is unquestionably valuable. If it represents a change only in perception--that is, if it is unrelated to subsequent behavior--its inclusion as a major aspect of a career planning program is open to question. With greater flexibility in time and emphasis than is afforded to a pilot demonstration, a math component should certainly be tried and a science component added on a trial basis.

The preparation and collection of large amounts of career and college material was a productive use of personnel time. Students responded to the materials favorably, and we believe can continue to use them for reference in the future. Thus not only did the written materials satisfy their need for information at the time, but they will also serve as a reminder and reference. Since it is obviously not feasible to compile these materials each time a workshop is conducted, after they have been revised we plan to make them available on request.

Just as the written materials served many purposes for participants, so too did the group leaders' script fulfill multiple needs. It is an effective way of insuring that different groups undergo a similar experience; it releases the leader so that she can concentrate on the students; and it provides the leader with a sense of security. For these reasons, it will become part of the program materials we will publish.

Throughout the course of this report we stated or implied the need for additional research about women, about nontraditional occupations, and about career development. Part of our plan for the future is to conduct a followup of attenders and non-attenders over as long a period as is practical. We will be looking for differences between the groups that might be related to participation in the Workshop, but also at differences in their progress not necessarily related to this program. Better understanding of young women similar to our target population can only contribute to better programs in the future.

We still believe, as we did initially, that a large part of the success we had was due to the climate we established. Female high school seniors, as well as males, are accustomed to being treated as children. In everything, from the choice of the site in which to hold the program to the examples we selected for inclusion, we purposely strove to communicate that we viewed the students as adults preparing for an adult life. Respect and recognition of accomplishments permeated all interactions, and the students responded in kind.

# APPENDIX A

## PUBLICITY

CUNY COMMUNITY NEWSLETTER. . . . . . . . . . . . . . . . . . . . A1
CUNY Graduate School NEWSREPORT. . . . . . . . . . . . . . . . . A2
Newtown High School COLLEGE ADVISORY . . . . . . . . . . . . A3
Draft Article for inclusion in school newspaper. . . . . . A4

CUNY COMMUNITY NEWSLETTER

*Published by the Office of Admission Services/The City University of New York*

Volume 6, Number 1

January, 1979

## Workshops for Female High School Students

In an effort to break occupational stereotyping and promote interest in occupational areas considered non-traditional for women, a program has been designed for female high school students who have not yet made definitive occupational choices.

The program, a series of four workshops, is being conducted by the Institute for Research and Development in Occupational Education of the Graduate School at CUNY. It is designed for more than 100 female high school students currently in their senior year who are likely to attend a community college next fall.

The long-term goal of the Career Path Workshop program is to encourage more women to consider non-traditional technical occupations by increasing their awareness of the existence and desirability of these careers, and by eliminating attitudinal barriers that have effectively locked women out of these fast-growing, rewarding occupational fields. The short-range goal is to provide 12th grade high school women who elect to continue their education at a community college with sets of structural experiences that result in expanded occupational horizons, increased self-awareness and career planning capability, and improved attitudes toward mathematics deemed necessary for technological education.

The workshop program will take place on March 14 and 15, and on April 16 and 17, 1979 at the Graduate School and University Center of the City University of New York. Participants are expected to come on all four days. Lunch will be served.

For applications or more information please write to Ms. Barbara Heller, CASE/IRDOE, Graduate School and University Center, City University of New York, 33 West 42 Street, New York, New York 10036, Room 1438.

The Graduate School and University Center of the City University of New York 33 West 42 Street, New York, N.Y. 10036

# graduate school march newsReport

Volume 3 Number 5 1979

## Career Paths Workshop to be Held at Graduate Center in March and April

It is a fact that, for whatever reasons, women have avoided careers in mathematics and the so-called "hard" sciences such as chemistry, physics, and engineering. Unfortunately, this bias has closed women off from a wide variety of occupations that are higher paying than the clerical and secretarial jobs that they have traditionally chosen.

To try and get women to re-examine their attitudes toward technological careers in mathematics and the sciences, the Institute for Research and Development in Occupational Education, part of the Center for Advanced Study in Education, is sponsoring a four-day intensive workshop at the Graduate Center for high school senior women who are planning to go to community college. During the four days, the high school seniors will learn about "non-traditional" jobs for women and will meet young women graduates of community colleges who are presently employed in such fields.

Barbara R. Heller, director of the Career Paths Workshop which is entitled, "From Senior to Freshman," said the project grew out of a similar one-day workshop that was held at the Graduate Center on December 21, 1977. Called "It's *My* Life!," that workshop was funded by a grant from the National Science Foundation and was geared to freshman and sophomore college women with interests in the physical, social, and behavioral sciences. The college students met with women who have careers in these areas. discussing how these women achieved success and how they manage their work and family obligations. Said Heller: "We focused on 'can women do it' and 'how' they do it."

Among the career women at that workshop were: Ethel Tobach, Curator of Animal Behavior at the American Museum of Natural History, Judith E. Sutherland, a polymer chemist with Eastman Kodak in Rochester, Marta Kindya, an engineer with New York Telephone, and Julie Landstein, a computer specialist with IBM.

Because that workshop was such a success, Heller decided to use the same techniques with high school students who will be going to community college, a group which, Heller pointed out, has "been virtually ignored in programs for women."

Approximately 125 young women representing all the high schools in New York City will be chosen to attend the four-day workshop, which will be held from 9 a.m. to 4 p.m. on March 14-15 when the students will be excused from classes and during spring recess on April 16-17. The women will be selected based on an application that is being distributed by high school college advisers. The women chosen will be those who are either leaning toward a career in the sciences or who are undecided about their career choice.

On the first day of the workshop, the women will be divided into ten small groups, each of which will be led by a community college counselor. An interest-inventory test will be given on that day, but the results will not be returned until the third day. On the second day, eight women community college graduates who have "non-traditional" occupations will participate in a morning panel session. These women may hold such jobs as telephone company electrician, draftsperson, dental lab technologist, or business accountant.

Each will describe a typical workday, including not only the entire range of duties they perform on their jobs, but what they do outside of work. As in last year's workshop, the focus will be on "how" women manage their various responsibilities. In the afternoon, each woman will lead a small group, and the high school students will meet with them.

On the third day, Dr. Stanley Kogelman, co-author of *Mind Over Math* and head of the company of the same name, will conduct sessions on math avoidance. Ten mathematicians will co-lead the groups with the ten community college counselors. Their purpose is to help the students understand and overcome their fear of mathematics. That afternoon, the results of the interest-inventory test will be returned, listing non-traditional careers that coincide with the individual's interests. On the last day, the participants will discuss the ways in which they may train for these careers.

Heller believes that at the present time there are more opportunities for women in these non-traditional job areas. She also stressed the fact that in addition to offering better salaries than office work, these jobs provide more flexibility in terms of scheduling. With a computer job for example, a woman can work any 8-hour shift, whereas most office jobs are from 9 to 5 only.

Funding for this project has been provided by the New York State Department of Education (Grants Administration Unit), under the Vocational Education Act. Victor D'Lugin and Linda Gross are the associate directors.

NEWTOWN HIGH SCHOOL

# COLLEGE ADVISORY

5

**YEAR 1979** No. 8 January 4, 1979 **COLLEGE ADVISER'S OFFICE - 132**

**Please read and post on section room bulletin board. It is very important that all college bound students be made aware of the contents of this bulletin.**

*__SPECIAL PROGRAMS__ - CUNY will have a 1 day workshop in March for female high school seniors who will be community college freshmen next year. Subjects discussed will relate to: kind of career; jobs available; skills necessary, etc. Lunch and refreshments will be served and no fees required. Dates are: March 14 and 15, April 16 and 17. Deadline - January 15. Applications are available in Room 136.

FOR GIRLS
ATTENDING
2yr. Colleges

**The Graduate School and University Center**
of the City University of New York

Center for Advanced Study in Education
Institute for Research and Development in Occupational Education
33 West 42 Street, New York, N.Y. 10036
(212) 221-3519, -3517

## draft ARTICLE for INCLUSION in School Newspaper

from SENIOR to FRESHMAN... is the name of a special program being given by the City University of New York (CUNY) for female high school seniors who will be community college freshmen next year. The move from senior to freshman involves your future... What kind of career will you have? What jobs are available? What kinds of skills do you need? What are you really interested in?

These and other subjects will be discussed in a new four-day workshop in March and April 1979 in mid-Manhattan, near CUNY's Graduate School and University Center building. During the four days (March 14 and 15, April 16 and 17) you will meet and talk to women working in the careers you are interested in, women going to the college you will be going to, and other people who can help you find out what it means to be a freshman... again. Lunch and refreshments will be served at no charge.

Applications for the program will be distributed in your home rooms or you can come to the college office, Room ____, and pick one up.

# APPENDIX B

## RECRUITMENT

from SENIOR to FRESHMAN, brochure/application

# from SENIOR to FRESHMAN...

**Career paths workshop for women students**

***WHO IS IT FOR?*** **FEMALE HIGH SCHOOL SENIORS**

who plan to attend community college and who want:

- to discover new careers
- to find the career best for you
- to meet and talk with working women
- to overcome fear of math
- to get the most out of community college

***WHEN WILL IT BE?*** **MARCH 14-15 and APRIL 16-17, 1979**

- on the Wednesday-Thursday in March you may be excused from classes
- the Monday-Tuesday in April are during Spring recess
- plan to come on all-four exciting days
- lunch and refreshments served at no cost

***WHERE WILL IT BE?*** **IN MID-MANHATTAN**

at CUNY'S Graduate School and University Center

- we will send you travel directions

***HOW DO I APPLY?*** **FILL OUT THE APPLICATION INSIDE**

- do it today! There are limited seats . . . so first come, first served
- be sure to answer all questions
- fold the application, staple or tape it closed, put on a stamp, and mail

## from SENIOR to FRESHMAN...
## Career Paths Workshop for Women Students

### APPLICATION FORM

Dear Applicant:

We are asking you some questions about your background, and about your hopes for the future so that we may plan activities around you. The program you are applying to, as you go from being a high school SENIOR to a college FRESHMAN, is based on the belief that in order to make good decisions about our lives we need to understand ourselves and the options that the real world offers.

Your answers to the questions will not be seen by your high school or the college you will be attending. Mail this application directly back to us after you answer all questions as best you can. We will let you know soon if we can accept you into the program. Thank you.

1. Name: ______________________ 2. High School: ______________________

3. Home Address: ____________________________________________

Zip Code: ______________

4. Home Telephone Number: ______________ 5. Official Class: ______________

6. Circle your current year in high school: Freshman Sophomore Junior Senior

7. Looking back over all the courses or subjects you have studied, write in the names of:

Two in which you have done the best: ______________ ______________

Two that you found most interesting: ______________ ______________

Two that gave you most problems or anxiety: ______________ ______________

8. What is your overall high school average? ______________

9. Are you currently taking any math or science courses? ___No ___Yes; if yes,

What math courses are you taking now? ______________________

What science courses are you taking now? ______________________

10. Check the highest level of schooling you want to complete:

___High school degree ___Four-year college, bachelor's degree

___Some college, no degree ___Other school; please explain: ______________

___Community college degree ______________________

11. Check which of these people in your immediate family went (or go) to college:

___Mother ___Father ___Sister ___Brother

12. List the names of colleges or other schools you would like to go to after you are graduated from high school. List them in the order that you would prefer. (Check here if you do not intend to go on to school: ________)

*First Choice*____________________ *Second Choice*____________________ *Third Choice*____________________

13. Check to show how likely it is that you will go to the schools you listed above:

*First Choice:* ___Very likely ___Somewhat likely ___Not very likely ___No chance

*Second choice:* ___Very likely ___Somewhat likely ___Not very likely ___No chance

*Third choice:* ___Very likely ___Somewhat likely ___Not very likely ___No chance

14. After you finish all your schooling, what careers or jobs would you be interested in? List three choices of careers in the order that you would prefer:

*First Choice*____________________ *Second Choice*____________________ *Third Choice*____________________

15. Check to show how likely you think it is that you will enter the careers you listed.

*First choice:* ___Very likely ___Somewhat likely ___Not very likely ___No chance

*Second choice:* ___Very likely ___Somewhat likely ___Not very likely ___No chance

*Third choice:* ___Very likely ___Somewhat likely ___Not very likely ___No chance

16. Briefly explain what you would like to get out of this special workshop program for women:

____________________________________________________________

____________________________________________________________

____________________________________________________________

17. To what ethnic group do you belong? (Note that this question is optional.)

___American Indian ___Black ___Hispanic ___Oriental ___Other: ____________

18. Do you have a physical handicap that requires special arrangements? ___No ___Yes; if yes, please describe your needs:

____________________________________________________________

19. Lunch will be served on the workshop days. Do you need a special diet for either health or religious reasons? ___No ___Yes; if yes, please describe your needs:

____________________________________________________________

# from SENIOR to FRESHMAN . . .

*IS THIS PROGRAM FOR YOU? YES*, it is planned by you for you...

The Career Paths Workshop will help you move from *HIGH SCHOOL SENIOR* to *COMMUNITY COLLEGE FRESHMAN*... meet other women in college... talk with women working in different fields, at different jobs... find out about job requirements and opportunities...

Want to explore what you're really good at? What careers there are that meet your needs for... money... respect... security... excitement? Are you concerned about your future and the decisions you will have to make?

If you think *maybe YES* to these questions, *THIS PROGRAM IS FOR YOU!*

Sponsored by the CASE Institute for R and D in Occupational Education, City University of New York (with a VEA grant from the New York State Department of Education, Grants Administration Unit.)

*Staple or tape here*

CASE/IRDOE
Graduate School & University Center
City University of New York
33 W. 42 Street
New York, New York 10036

Put 15¢
Stamp
here

CASE/IRDOE Room 1438
Graduate School & University Center
City University of New York
33 W. 42 Street
New York, New York 10036

*Staple or tape here*

# APPENDIX C

# CAREER MATERIALS

Associations and Organizations Supplying Career Materials. . . . . . C1
Contributors . . . . . . . . . . . . . . . . . . . . . . . . . . . . C4

**Career pamphlets and brochures given to each participant were provided by:**

Air Transport Association of America
1709 New York Avenue, N.W.
Washington, D.C.

American Collectors Association, Inc.
Box 35106
Minneapolis, Minn. 55435

American Dental Assistant Association
Suite 1130
666 North Lake Shore Drive
Chicago, Ill. 60611

American Electroplates Society, Inc.
1201 Louisiana Ave.
Winter Park, Fla. 32789

American Hospital Association
840 North Lake Shore Drive
Chicago, Ill. 60611

American Institute for Drafting and Design
3119 Price Rd.
Bartlesville, Okla. 74003

American Occupational Therapy Association
6000 Executive Boulevard
Rockville, Md. 20852

American Physical Therapy Association
1156 15th Street, N.W.
Washington, D.C. 20005

American Society for Clinical Pathologists
Box 4872
Chicago, Ill. 60680

College Scholarship Service of the College Board
Princeton, N.J.

Consumer Electronics Group
2001 I Street, N.W.
Washington, D.C. 20006

Consumer Markets Division
Kodak
Rochester, N.Y. 14650

Council of the Better Business Bureau
1650 17th Street, N.W.
Washington, D.C. 20036

Department of Health, Education and Welfare
Office of Education
Washington, D.C. 20202

Education and Community Services
American Council of Life Insurance
Health Insurance Department
1850 K Street, N.W.
Washington, D.C. 20006

Equal Opportunity Employer
Department of Treasury
Internal Revenue Service
Washington, D.C.

General Electric Co.
3135 Easton Turnpike
Fairfield, Conn. 06431

Insurance Information Institute
110 William Street
New York, New York 10038

National Art Education Association
1916 Association Drive
Reston, Va. 22091

National Association of Independent Insurers
2600 River Road
Des Plaines, Ill. 60018

National Association of Realtors
430 N. Michigan Ave.
Chicago, Ill. 60611

National Association of Trade and Technical Schools
2021 L Street, N.W.
Washington, D.C. 20036

New York City Community College of
The City University of New York
300 Jay Street
Brooklyn, N.Y. 11201

Office of Education
American Dental Hygienists Association
211 E. Chicago Ave.
Chicago, Ill. 60611

Opticians Association of America
1250 Connecticut Ave., N.W.
Washington, D.C. 20036

Professional Staff Congress
New York State United Teachers
American Federation of Teachers
AFL-CIO
25 West 43 Street
New York, New York 10036

Sales and Marketing Executives
380 Lexington Ave.
New York, New York 10017

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

United Optical Workers Union
Local 408 IVE, AFL-CIO
200 Park Avenue South
New York, New York 10003

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